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TREATMENT OF CORONARY ARTERY DISEASE

Dicumarol Therapy

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Though the long range outlook in any phase of the treatment of coronary artery disease is necessarily colored by the inherent progressive trend of an essentially degenerative process, with all of its unpredictable proclivities, nevertheless a favorable outcome could reasonably be anticipated in about 80 per cent of well managed myocardial infarctions following coronary occlusion. It now appears that with the newer developments in anticoagulant therapy, there may be justification for a revision of the philosophy of treatment by adopting the more positive program of management offered by Dicumarol (3,3'-methylene-bis-[4-hydroxycoumarin]) in addition to the established methods of control.

In the treatment of coronary artery disease in general, the following important considerations necessarily influence the symptoms and signs as well as the prognosis and therapeutic response: (1) the type of coronary syndrome presented, whether angina pectoris, acute coronary insufficiency or actual occlusion; (2) the presence and extent of any ensuing myocardial infarction; (3) the amount of associated cardiac damage and consequent impairment of myocardial reserve. This can often be inferred by the antecedent history of response to effort and stress *before* the acute coronary episode and is further indicated by electrocardiographic, roentgenologic and other laboratory studies, and (4) the constitutional background of the patient, including heredity and temperament, associated hypertension or metabolic disorders and the general vascular status.

ANGINA PECTORIS

This is an event that ofttimes casts its shadow before. Preliminary warning of impending angina pectoris may take the form of a vague, indefinite substernal or epigastric discomfort following effort or emotional stress, especially after a large meal. The overweight, the hypertensive and the diabetic persons seem particularly vulnerable, and anemia, paroxysmal tachycardia and hyperthyroidism may be contributing factors. Anginal subjects are more frequently than not possessed of a hyperreacting temperament; they are characteristically restless, often without natural or cultivated tranquillity and poise, and seem notably lacking in the ability to relax or let up on sustained tension in their occupational or even recreational pursuits. The implications for guidance appear obvious, but correction is usually difficult and failure of accomplishment notorious.

Effective management of the anginal state entails carefully planned reduction of cardiac demand in the face of impaired coronary supply, which offers far greater possibility of adjustment than do currently available measures for increasing coronary flow. The most effective measure at the physician's command is a positive ban on smoking, because of the dual cardiac handicap which tobacco presents; the vasoconstrictor action of nicotine and the increase in the level of carbon monoxide in the blood (tables 1 and 2).[1] Not only does this impair its oxygen-carrying power but the relative anoxia may readily touch off a susceptible coronary reflex just as disease of the gallbladder may initiate an irritable coronary constrictor mechanism. The combination of a sensible protective philosophy of living and the curtailment of smoking will control many an effort anginal syndrome.

Other therapeutic measures that appear to merit a place in the treatment of angina pectoris include the use of nicotinic acid, papaverine and alcohol in moderation and teaching the anginal subject to anticipate unavoidable circumstances, such as going out in cold air, by using $\frac{1}{200}$ to $\frac{1}{100}$ grain (0.3 to 0.6 mg.) glyceryl trinitrate sublingually in order to prevent anginal pain. No harm can accrue from frequent resort to this valuable measure. Alcohol is probably the best coronary dilator, with papaverine more adaptable to protracted action when needed. The conventional dosage of papaverine has undoubtedly been inadequate, as it appears to require from 2 to 4 grains (0.13 to 0.26 Gm.) three or four times a day to be most effective in preventing "angina decubitus" or in controlling a lowering effort threshold of anginal pain. The use of nicotinic acid because of its vasodilatory effect appears to be justified in an attempt to increase the collateral coronary supply.

In the matter of xanthine derivatives my observation parallels that of Evans and Hoyle,[2] Steinberg and Jensen,[3] and Stevens,[4] in that these compounds are generally ineffective in the management of effort angina uncomplicated by myocardial failure, although apparent clinical response appears to justify their use in those cases that do show improvement.

Read in a symposium on "Treatment" before the Section on Experimental Medicine and Therapeutics at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

1. Hanson, H. B., and Hastings, A. B.: The Effect of Smoking on the Carbon Monoxide Content of Blood, J. A. M. A. **100**: 1481 (May 13) 1933.
2. Evans, W., and Hoyle, G.: The Comparative Value of Drugs Used in the Continuous Treatment of Angina Pectoris, Quart. J. Med. **2**: 311-338 (July) 1933.
3. Steinberg, F., and Jensen, J.: The Use of Theophylline Aminoisobutanol in Angina Pectoris, J. Lab. & Clin. Med. **30**: 769-773 (Sept.) 1945.
4. Stevens, R. S.: The Present Status of Treatment of Coronary Artery Disease, Canad. M. A. J. **44**: 124-128 (Feb.) 1941.

As to the other forms of treatment in current use, I feel that iodides are probably of value but that androgen therapy does not appear justified. The beneficial effect of small doses of thyroid extract to 21 patients was recently reported by Lerman and White[4a] with the thought of producing general vasodilatation by increasing the metabolic rate. These investigators considered that this effect might decrease the work of the heart even though cardiac output per minute was increased. Thyroid also tends to lower cholesterol blood levels, an effect which in the present state of medical knowledge appears to be desirable. The dosage should be small (½ to 1 grain [0.03 to 0.06 Gm.] a day) and cholesterol levels should be checked.

The importance of mild sedation cannot be overlooked in the management of chronic coronary insufficiency with angina, but it must be remembered that in older subjects, particularly those with cerebral vascular changes, there may develop intolerance to protracted barbiturate therapy. When barbiturate drugs are employed they should be alternated with other sedatives such as bromides, carbromal or perhaps codeine.

In cases in which increasing frequency or severity of anginal seizures, with an ever lowering threshold of effort tolerance, perhaps to the point of "angina decubitus," suggests the danger of approaching occlusion, the most effective coronary vasodilator available is an adequate dosage of papaverine by mouth or even intravenously, should the need appear urgent in order to ward off threatened occlusion or at least to limit regional vasoconstriction if complete occlusion with ensuing infarction appears inevitable.

TABLE 1.—*Percentage of Saturation of Hemoglobin with Carbon Monoxide in the Blood of Normal Nonsmoking Subjects* *

Subject	CO Content, Vol. %	Hb. Content, Vol. %	Saturation, %
Ti.	0.29	20.3	1.4
Tr.	0.38	19.8	1.9
F. H.	0.34	20.3	1.7
M.	0.26	18.8	1.4
H.	0.35	20.6	1.7
H.	0.31	20.6	1.5
L.	0.23	19.3	1.2
Average			1.5

TABLE 2.—*Percentage of Saturation of Hemoglobin with Carbon Monoxide in Blood of Tobacco Smokers*

Subject	CO Content, Vol. %	Hb. Content, Vol. %	Saturation, %	Comment
R.	0.82	20.6	4.0	After smoking 15 cigarets
B.	0.77	21.0	3.7	After smoking 15 cigarets
Hs.	0.64	20.6	3.1	After smoking 12 cigarets
Q.	1.46	21.7	6.7	After smoking 12 cigarets
A.	0.80	19.9	4.0	After smoking 10 cigarets
K.	0.87	20.1	4.3	After smoking 15 cigarets
Hn.	0.79	20.6	3.8	After smoking 10 pipe loads
Hn.	0.87	21.4	4.1	After smoking 10 pipe loads
Hn.	0.42	21.0	2.0	Next morning, 12 hours since last smoke
Hn.	0.45	21.1	2.1	Evening, same day, 18 hours since last smoke

* The tables are from Hanson and Hastings.[3]

In the treatment of effort angina in the obese with protruding abdomens, I have noted considerable improvement in effort capacity from adequate abdominal support, such as that described by Kerr[5] in the form of the Kerr-Lagen belt. On fluoroscopic examination the diaphragms of such persons are often below the normal position, and their movement apparently is limited by the weight of the abdominal viscera. Partially restored diaphragmatic function by an elastic, lifting type of support apparently aids the return flow of blood to the heart. In my observation androgen therapy has not been effective in angina pectoris.

THE PREVENTION OF ACUTE CORONARY EPISODES

Given a case of typical effort angina in which such perpetuating influences as overweight, diabetes, hypertension, anemia, hyperthyroidism and faulty habits of living have been dealt with as effectively as possible, are there any specific measures which may further protect the heart against sudden catastrophe or at least minimize that possibility? Such a question naturally presents a therapeutic challenge. The problem is to make the most of what coronary supply is potentially available, therefore one seeks to discourage such vasospastic influences as tobacco, cold and emotional stress while protecting coronary reserve by the curtailment of unnecessary demands on the heart and guarding against the dangers of gastric overdistention and undue fatigue. All this entails thoughtful planning and understanding cooperation attainable only by cultivated self control and self discipline, characteristics which are all too infrequently encountered in the mental attributes of the typical anginal subject, to whom the application of the proverb, "He that ruleth his spirit is greater than he who taketh a city," seems particularly appropriate.

A painstaking review of the anginal subject's daily activities by the clinician is likely to prove far more useful and effective than any regimen of drug or biologic therapy now available. It is astonishing what obvious and commonplace circumstances, heedlessly encountered by the average anginal subject, may be avoided or at least moderated by the cultivation of a sensible, protective attitude of living, thus helping to bridge the gap between physiologic demand and attenuated coronary supply. Therapeutic measures aimed at stepping up coronary flow must necessarily be directed toward an attempt to enhance collateral circulation around a narrowed channel, a process necessarily long and uncertain even if eventually successful. In the meantime protective measures to conserve the lowered coronary reserve must be emphasized and insisted on in any thoughtful program of management. Only in as far as such a program is successful can one hope to delay eventual coronary occlusion or acute coronary insufficiency at least as long as the attendant physiologic and pathologic conditions permit.

It is known that the reduction of blood pressure after spinal anesthesia may precipitate acute occlusion in a coronary subject. Furthermore, coronary occlusions tend to occur at night when the tide of pressure is at low ebb. If this nocturnal lowering be in any way accentuated after a day of unusual effort and consequent fatigue, then fatigue might well constitute a precipitating influence in bringing about an occlusion

4a. Lerman, J., and White, P. D.: Metabolic Changes in Young People with Coronary Heart Disease, read before the thirty-seventh annual meeting of the American Society for Clinical Investigation, Atlantic City, N. J., May 27, 1946.

5. Kerr, W. J.: Treatment of Angina Pectoris by Methods Which Appear to Promote More Adequate Filling of the Heart, Am. Heart J. 16: 544-548 (Nov.) 1938.

6, 7 and 8. Footnotes deleted by author.

during the ensuing night. Clinical observation seems to justify this concept and consequently appears to rationalize the importance of avoiding fatigue at any cost, in the interest of which a period of rest during the day is highly desirable if not imperative. Two grains (0.13 Gm.) of papaverine before retiring after a day of unusual strain or stress, particularly when accompanied by the least suggestion of substernal uneasiness, is indicated as a logical effort toward the maintenance of coronary relaxation. The administration of similar or larger doses through the day may be indicated, as papaverine is the best coronary vasodilator in contemporary usage. The longer acting nitrites, such as mannitol hexanitrate and erythrityl tetranitrate, three or four times a day, have occasionally been effective in preventing attacks, in cases in which anginal seizures respond well to glyceryl trinitrate but require a great many tablets daily. As stated previously, smoking should be interdicted, whereas the use of alcohol in moderation is permitted in cases in which it is well tolerated, since it apparently exerts a protective influence probably because of its vasodilatory effect.

IMPENDING OCCLUSION AND ACUTE CORONARY INSUFFICIENCY

The imminence of complete closure developing in an already narrowed coronary vessel is suggested when anginal pain results from ever lessening degrees of effort or stress or when it occurs during rest, with or without a history of preceding effort angina.

Acute coronary insufficiency may be brought about by a cardiac overload beyond the capacity of narrowed coronaries to deliver blood, or may result from impoverishment of the supply of blood after hemorrhage, shock or the dehydration of any severe debilitating illness in a coronary subject. Such coronary failure may result in irreversible myocardial changes due to prolonged anoxia, so that infarction often develops. This can at times be averted by the prompt intravenous injection of 1 to 2 grains (0.06 to 0.13 Gm.) of papaverine, followed by theophylline ethylenediamine intravenously where indicated and by prompt oxygen therapy when available. If papaverine is ineffective within a few minutes, the subcutaneous or even intravenous use of morphine is in order, should the distress be serious or prolonged. The intravenous administration of theophylline ethylenediamine often proves beneficial when congestive failure develops; otherwise it is best avoided, because it increases the work of the heart proportionately more than it enhances coronary flow. Meanwhile the possibility of a developing myocardial infarction must always be kept in mind so that appropriate management can be instituted where indicated.

CORONARY OCCLUSION WITH MYOCARDIAL INFARCTION

Presented with a clinical picture of coronary occlusion and developing infarction, the first consideration should be the relief of pain followed by treatment of shock and prevention of further extension of coronary thrombosis by decreasing the thrombosing tendency with Dicumarol. The established conventional measures, though apparently sound and thoughtful procedures, nevertheless are all directives that might tend to encourage further thrombosis, such as inactivation and heavy sedation, augmented by dehydration incidental to sweating, frequent nausea and vomiting and consequently restricted fluid intake. Such dehydrating measures, sometimes further enhanced by the effect of the xanthine derivatives, decrease the fluidity and the volume of the blood.

TREATMENT WITH DICUMAROL

Dicumarol therapy represents the first step in the form of a positive therapeutic approach to the problem of coronary thrombosis and ensuing myocardial infarction, except for oxygen. The eventual place of this drug in the management of coronary occlusion cannot be arbitrarily stated at this time, much further comparative investigation being essential before any final conclusions can be drawn. The American Heart Association is setting up a committee under the chairmanship of Dr. Irving S. Wright, composed of the heads of large medical services who will be asked to use Dicumarol in alternate cases in an attempt to evaluate its influence on mortality. Wright [9] has treated 80 patients, in whom the anticipated mortality appears to have been reduced at least a third by comparison with previous series on conventional therapy. Wright found that Dicumarol had not aggravated the disease in any patient, and there was no evidence of recent hemorrhages in the intima of the coronary vessels in autopsied hearts. In no case was there any evidence that the old thrombus might have resolved or that the progression of an established infarction had been intercepted. It is realized that such a process cannot be anticipated, but it is thought that the drug may combat the tendency for propagation of a thrombus and may reduce the tendency toward phlebothrombosis and intramural thrombi as well as the incidence of consequent pulmonary infarction and systemic embolism.

Peters, Guyther and Brambel [10] have reported a reduction of embolic phenomena to one-eighth and mortality rate to one-fifth in comparing 50 dicumarolized with 60 nondicumarolized patients, and they concluded that such reduction appeared sufficiently significant to warrant further clinical evaluation of anticoagulant therapy.

Nichol and Page [11] used the drug in 50 consecutive occlusive episodes, with a history of previous myocardial infarction in 20. All 26 patients who suffered their first attack survived. Eight others died within the first six weeks. Six necropsies were performed which failed to reveal any mural thrombi or systemic or pulmonary emboli on these dicumarolized patients.

Contraindications to Dicumarol therapy in coronary occlusion include hemorrhagic blood dyscrasias, advanced hepatic disease, a history of ulcer or recent hemorrhages of the gastrointestinal tract and renal insufficiency which might prevent proper excretion of the drug.

It should be borne in mind that dicumarol therapy may influence to some extent the sedimentation rate, thus making this useful guide concerning progress somewhat less consistent and dependable, although in my experience the test is still useful and worth observing.

9. Wright, I. S.: Experiences with Dicumarol in Treatment of Coronary Thrombosis, Am. Heart J. **32**: 2031 (July) 1946.
10. Peters, H. R.; Guyther, J. R., and Brambel, C. E.: Dicumarol in Acute Coronary Thrombosis, J. A. M. A. **130**: 398-403 (Feb. 16) 1946.
11. Nichol, E. S., and Page, S. W.: Dicumarol Therapy in Acute Coronary Thrombosis, J. Florida M. A. **32**: 365-370 (Jan.) 1946.

ROUTINE FOR DICUMAROL THERAPY

1. Patients must be hospitalized and Dicumarol therapy must not be attempted unless it is certain that the laboratory is prepared to make accurate prothrombin readings, which must be done each morning before the day's dosage of the drug is given.

2. Preliminary management consists in the administration of papaverine intravenously, with oxygen and morphine if necessary.

3. After the diagnosis is established, check the prothrombin level and give 300 mg. of Dicumarol by mouth.

4. Repeat the dosage of 300 mg. daily after the morning prothrombin level is determined, until 50 per cent is reached.

5. After 50 per cent is reached, give 100 mg. of the drug each morning until 35 per cent is attained.

6. Now stop the medication for several days (as the level is likely to drop lower without further dosage). Thirty-five per cent is the stop signal!

7. When the level again rises above 35 per cent, give 50 to 100 mg. of the drug daily, attempting to hold the level between 35 per cent and 50 per cent.

8. Keep this level for four to six weeks, as long as the patient is in hospital.

9. If the level gets down to 15 per cent (rare), watch for hemorrhagic phenomena, such as red cells in urine, petechial spots or purpuric areas. Treatment: Give 60 to 72 mg. of synthetic vitamin K intravenously; give the second dose in four hours.

10. In the event of alarming hemorrhage, give *freshly* citrated blood as often as needed. Blood loses its prothrombin in from twenty-four to thirty-six hours.

Since 1942, Barker [12] has reported no serious or fatal hemorrhage except in 1 patient with carcinoma of the duodenum, in over 1,000 cases of all types treated with Dicumarol.

For the pain of an actual occlusion just as in threatened occlusion, intravenous papaverine should be given promptly, followed in ten to fifteen minutes by hypodermic or intravenous morphine if needed. Such measures not only relieve pain rapidly but appear to minimize shock and may even serve to limit the coronary vasoconstrictor reflex, with all the implications such limitation may have on the ultimate extent of the infarcted area. Prevention of reflex vagus vasoconstriction by the administration of $\frac{1}{75}$ grain (0.86 mg.) of atropine appears to be a sound measure, even though no more than a well founded suspicion of developing infarction exists. The antifibrillation effect of papaverine, as demonstrated by Lindner and Katz [13] in experiments on dogs, appears to justify the clinical use of this drug in myocardial infarction. LeRoy and Snider [14] demonstrated that after coronary ligation in dogs there was a generalized coronary vasoconstriction subsequent to the myocardial infarction. This seemed to be the factor bringing about ventricular fibrillation, which, when it occurred, appeared to be the immediate cause of death in animals succumbing to the experiment. It would appear that the protection of the regional myocardium from vasoconstrictive reflexes, which might extend the area of infarction or even produce fatal ventricular fibrillation, constitutes sufficient rationale for the use of papaverine in all cases of severe or sustained coronary pain.

Absolute physical and mental rest is of course imperative. Anxiety should be attenuated in every way possible. Oxygen given by nasal catheter or comfortable facial mask is an important protective measure and is always indicated, particularly in severe infarctions.

The occurrence of frequent ventricular extrasystoles after myocardial infarction appears to be an ominous sign. Woods and Barnes [15] observed that the more frequently they occurred the greater was the mortality. It is the opinion of several observers that infarcted areas of myocardium are hyperirritable and constitute foci for ectopic beats, which by their summation may lead to ventricular fibrillation, a frequent cause of sudden death after myocardial infarction, and one which can apparently be minimized by the use of quinidine sulfate, which seems to be more effective as a prophylactic agent against ventricular tachycardia and fibrillation than as a curative one. I [16] have been using 3 grains (0.2 Gm.) of quinidine sulfate three times a day in the management of severe myocardial infarctions, particularly where there is a tendency to extrasystoles.

During the period of convalescence from myocardial infarctions, because of the lowered blood pressure and prolonged period of rest in bed, circumstances are favorable for the formation of thrombi in the iliac veins, from which source pulmonary embolisms produced 10 per cent of the deaths following acute myocardial infarction, as reported by Woods and Barnes [15] and Bean.[17] The latter reported that every instance of fatal massive pulmonary embolism after myocardial infarction had arisen from the veins of the pelvis or lower extremities. In addition to the anticoagulant effect of Dicumarol, one may combine knee flexing and deep breathing after the method of Potts,[18] who employed this procedure several times a day in postoperative surgical cases for the prevention of phlebothrombosis and subsequent pulmonary embolism. With this objective in mind, convalescent patients with myocardial infarction are instructed to take from eight to ten deep breaths while the legs are being flexed, at first passively and later actively, four times daily. Coronary thrombosis does not often repeat itself within a few weeks. An apparent second attack at such a time is usually due to pulmonary embolism, especially from leg veins. Dicumarol therapy apparently obviates such a complication, as it appears to discourage venous and intramural thromboses from forming (Nichol and Page [11]).

12. Barker, N. W., and others: Use of Dicumarol in Prevention of Post-Operative Thrombosis and Embolism, Surgery **17**: 207-217 (Feb.) 1945.

13. Lindner, E., and Katz, L. N.: Papaverine Hydrochloride and Ventricular Fibrillation, Am. J. Physiol. **133**: 155-160 (May) 1941.

14. LeRoy, G. V., and Snider, S. S.: Sudden Death of Patients with Few Symptoms of Heart Disease, J. A. M. A. **117**: 2019-2024 (Dec. 13) 1941.

15. Woods, R. M., and Barnes, A. R.: Factors Influencing Mortality Rate Following Acute Coronary Occlusion, Proc. Staff Meet., Mayo Clin. **16**: 341-345 (May) 1941.

16. Falk, O. P. J.: Causes and Prevention of Sudden Death in Coronary Disease, J. A. M. A. **119**: 1250-1252 (Aug. 15) 1942.

17. Bean, W. B.: Infarction of the Heart: III. Clinical Course and Morphological Findings, Ann. Int. Med. **12**: 71-94 (July) 1938.

18. Potts, W. J.: Pulmonary Embolism, Ann. Surg. **111**: 554-563 (April) 1940.

Myocardial failure associated with severe pulmonary edema and, sometimes, acute hepatic congestion is an occasional complication of myocardial infarction. Indications for its management include the judicious and careful use of digitalis and theophylline ethylenediamine, with adequate oxygen therapy.

MYOCARDIAL INFARCTION AFTER SURGICAL OPERATIONS

Coronary occlusion and myocardial infarction are not infrequently the cause of sudden death in subjects past middle life during surgical anesthesia and in the early postoperative period. The fall in blood pressure that characterizes such states presents an ideal situation for an already impaired coronary vessel to develop complete occlusion. This possibility justifies a painstaking preoperative appraisal of coronary efficiency and myocardial reserve, by careful inquiry into the middle-aged and older patient's cardiac response to the demands of his every day life, as well as a comprehensive survey and evaluation of the objective clinical, roentgenologic and electrocardiographic data. Naturally the proper choice of anesthetic with careful observation and management during anesthesia and in the immediate postoperative period is imperative. It would appear good judgment to reduce the time of surgical procedure to a minimum in any case of suspected coronary insufficiency. One must always bear in mind the danger of medical or surgical shock as a precipitating factor in the production of myocardial infarction, especially if the history of the patient suggests the presence of chronic coronary disease.

DIET AND ELIMINATION IN MYOCARDIAL INFARCTION

After three or four days of liquid diet the patient may receive a soft diet, which may include cooked cereals, weak tea, broth, gelatin, cottage cheese, applesauce, junket, baked potatoes and soft boiled eggs. No food is to be taken in large quantities. A small glass of milk or malted milk with a few wafers may be taken between meals if desired. Should the first week show evident progress without complications, a light general diet may be given, limiting the size of meals and minimizing fat, which tends to delay gastric emptying. Although increased blood cholesterol is not infrequently associated with coronary atherosclerosis, particularly in middle-aged subjects, a low fat diet alone does not reduce cholesterol levels. It appears to be the manner in which fat is disposed of and not the amount in the food that counts. Roughage should be limited because of its influence on gaseous distention. In general small meals, eaten slowly, and unaccompanied by much fluid, are preferable. Such a diet may include all the softer vegetables, eggs, lean meat, fowl or fish, toasted bread, cereals, tapioca, cooked ripe fruits, fruit juices and gelatin.

With regard to bowel movement, moderate elimination is to be procured with the least possible disturbance. Therefore the use of oil and agar preparations morning and evening, augmented by a glycerin suppository or small enema when necessary, is the optimum arrangement. The patient must be warned not to strain at stool or to try to help himself on or off the bedpan, as any extra exertion may present a serious hazard. When a chair commode presents less effort and stress, its cautious use is recommended.

REST IN THE TREATMENT OF CORONARY DISEASE

Arbitrary standardization of the time essential for complete rest in bed and avoidance of all physical activity after myocardial infarction is manifestly impossible. Acute coronary insufficiency frequently requires only a week or ten days of rest in bed, provided no area of actual infarction develops, which can be determined by the clinical course, sedimentation rate and electrocardiographic findings. Moderate degrees of myocardial infarction may only require three weeks of rest in bed, but the severer types require a minimum of from four to six weeks. Frequently the beneficial effects of rest in bed are offset by visitors, the intrusion of personal responsibilities or business worries, all of which should be shut off entirely from the patient's immediate horizon during his period of convalescence.

After recovery the most important phase in the restoration of reasonable functional capacity is adaptation to a lowered plane of activity, the development of a more philosophic outlook on life and the transition to a more tranquil and quiet existence. A degree of personal interest and patient guidance, tinctured with an understanding optimism is of greater benefit to a coronary convalescent than any program of medication, which on the whole is essentially protective in its objective.

The etiologic trinity of coronary disease consists of the predisposing, the precipitating and the perpetuating influences. The predisposing has already manifested itself in the afflicted subject—more often than not inscribed in the archives of his family history. Precipitating influences should be thoughtfully avoided and the lethal threat of stress and strain kept in mind. The perpetuating influences of coronary disease have been discussed, including overweight, injudicious habits of eating, drinking and smoking, uncurbed emotional proclivities along with unwarranted fatigue, all of which must be carefully and thoughtfully avoided in the interest of functional recovery and future welfare.

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ABSTRACT OF DISCUSSION

DR. E. STERLING NICHOL, Miami, Fla.: My comments will concern the treatment of acute coronary thrombosis with Dicumarol. The principal reason for using an anticoagulant in coronary thrombosis is to prevent embolic phenomena and extension of the initial thrombus or the occurrence of a second thrombus during the convalescence. The incidence varies, depending on whether one is dealing with clinical or autopsy data. To date 68 attacks occurring in 62 patients have been treated over the past three years. These were unselected, consecutive episodes, as it was not considered possible to tell which patient would need an anticoagulant. Although the idea of treating with Dicumarol only if the prothrombin activity is increased may be very good, there are other variables about which nothing is known. One cannot select a patient and say "he will have a small infarct." The results were not astounding but do compare favorably with published series. In the 68 attacks, 11 deaths gave a mortality of 16 per cent. No proven embolic phenomena occurred in the entire series. One patient may have died with pulmonary infarction, but no autopsy was allowed. In the 8 autopsies performed there were absolutely no signs of mural thrombi. Since autopsy statistics show that 50 per cent of all myocardial infarcts produce mural thrombi, it seems rather significant that in these 8 cases no mural thrombi were found. There were 38 first attacks with only 1 death, which is certainly a satisfactory ratio. Heparin will probably replace Dicumarol as an anticoagulant as soon as it becomes available in the Pitkin solution. I would

like to take substantial exception to the idea that the best treatment for coronary thrombosis is "masterful inactivity." Comparison of mortality figures published over the past twenty years with the clinician philosophy reveals a striking parallel between the death rate and the inactivity!

DR. WILLIAM J. KERR, San Francisco: In most patients with angina pectoris the major factor which is responsible for controlling the person's symptoms is getting more blood back to the heart. Methods have been devised which will aid in getting blood back to the heart by the use of a properly fitting elastic abdominal belt. In a period of ten years I have had hundreds of patients with angina pectoris, and most patients who fall in this general category are almost entirely relieved of attacks of anginal pain immediately, as soon as the belt is put on and properly adjusted. Most of the patients in this category no longer require any vasodilating drugs. Their weight is reduced as may be necessary, and later postural training is instituted. One of the most important factors in the treatment of the patient with an acute attack of coronary occlusion with infarction is the immediate relief of pain. One can give small doses of morphine intravenously immediately. The pain usually will stop while the morphine is being given. That is a great advance in the shortening of the attack of pain and thereby in the reduction of shock. It is the shock that often extends the zone of infarction. As Dr. Falk so well pointed out, many things are done that might even promote the extension of the infarcted area. It is essential that the patients start moving their arms and legs to prevent thrombosis in the veins. Do this as soon as possible. Many of the patients that I see in the second week or third week after an attack, when it is thought they are having a subsequent attack or an extension of the process, have only a pulmonary embolus resulting from a thrombosis in some part of the periphery. Vasodilators given in too large amounts may be harmful, because if there are narrowed coronary orifices or there is sufficient narrowing of the vessels in some part of the coronary system, should vasodilators cause peripheral dilatation and also result in dilatation of the coronaries, their purpose has been defeated. Temporary relief of pain may be obtained, but it may make patients worse. I have seen patients who have been taking 20 and 30 tablets of glyceryl trinitrate a day get worse and worse. By omitting these drugs entirely they may be almost completely relieved of their attacks. Some have spoken about the persistent pains in the shoulders of patients with coronary occlusion, assuming that this is on some reflex basis. There may be some patients in this category, but most of the patients I see have the frozen shoulder or bursitis or have shortening of the pectoralis muscles and latissimus dorsi and their tendons. That is the chief cause of painful shoulder, in my experience, and it is not due to some reflex from the diseased arm.

DR. O. P. J. FALK, St. Louis: I believe every point has been covered by the generous discussion of Drs. Nichol and Kerr, for which I am grateful.

Eyestrain.—The most common factor determining eyestrain today, even to those with normal eyes, is insufficient or ill distributed illumination. There is a popular superstition that too much light is bad for the eyes and that harm results from work under artificial illumination: it is true that to look directly into the sun is dangerous since the infra-red rays may produce a retinal burn, but the eyes have been evolved to see and work most efficiently under illuminations comparable to that of diffuse daylight. There is no medical danger in artificial lighting; its usual fault is that it is either not nearly strong enough or so badly distributed as to induce the annoyance of glare. Summer sunlight at noon has an intensity of the order of 10,000 foot-candles, and on an overcast day it is about 1,000 foot-candles. Too often at work or when reading in the evening the illumination available is of the order of 1 or 2 foot-candles. No one can work or read efficiently or comfortably unless he sees what he is doing, and it is only necessary to turn on the available artificial light at noon to realize how poor a showing it makes and how great are the disadvantages under which our eyes habitually work.—Stewart Duke-Elder: Eyestrain, *Practitioner*, May 1947.

INFILTRATING CARCINOMA OF THE BLADDER

Application of Pathologic Observations to Clinical Diagnosis and Prognosis

HUGH J. JEWETT, M.D.
Baltimore

An inquiry into the reasons for the existing low survival rate in cases of infiltrating carcinoma of the bladder has disclosed four cardinal causes of failure with any method of treatment: (1) preexisting metastases; (2) preexisting extravesical extension; (3) intercurrent complications, and (4) incomplete destruction or extirpation of the primary growth.

It therefore seems obvious that accurate evaluation of the efficacy of any treatment in the total eradication of primary infiltrating tumors will depend first on the exclusion of metastasis and extravesical extension. The clinical application of our recent pathologic observations[1] to each individual patient now permits the exclusion or recognition of metastasis and extravesical extension in a fairly high percentage of cases and indicates the prognosis in most instances.

In 1944 the late Dr. Hugh H. Young proposed to me an analysis of the 1,400 cases of carcinoma of the bladder in the files of the Brady Urological Institute, for the purpose of ascertaining and standardizing the best method of treatment for each type of case. However, a preliminary survey made with the assistance of Dr. John Egan revealed the uselessness of such a program. First, in a large but uncertain number of cases the disease apparently had been hopelessly advanced and incurable at the time treatment was commenced, although many failures undoubtedly had resulted from incomplete destruction of a potentially curable tumor. Second, in some instances it seemed that cures had been attributed to certain methods of treatment although there was no conclusive evidence that the tumor had been infiltrating, beyond the impression gained from simple cystoscopic inspection. Therefore, since infiltration had not been established in every case and metastasis and extravesical extension had not been properly excluded, an accurate appraisal of treatment was not possible at that time.

The presence of metastasis or extravesical extension indicates an advanced stage of tumor, which is obviously incurable by any of the known methods of treatment. Four common reasons exist for the fact that these extensive tumors still comprise a large proportion of the vesical neoplasms seen in many urologic clinics. First, cancer of the bladder usually has an insidious onset and grows silently and sluggishly. Thus, the characteristic symptoms of hematuria and vesical irritability, of which one or the other appears in 80 per cent of the cases, may occur late. Second, the patients themselves, or their physicians, are often apathetic toward these warning symptoms for long periods of time. In a recent study[2] of 103 cases at the Johns

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Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. (a) Jewett, H. J.: Infiltrating Carcinoma of Bladder: Relation of Potential Curability to Depth of Infiltration, Tr. Am. A. Genito-Urin. Surgeons **37**: 51-65, 1944. (b) Jewett, H. J., and Strong, G. H.: Infiltrating Carcinoma of the Bladder: Relation of Depth of Penetration of the Bladder Wall to Incidence of Local Extension and Metastases, J. Urol. **55**: 366-372 (April) 1946.

2. Jewett, H. J., and Strong, G. H.: Infiltrating Carcinoma of the Urinary Bladder: Diagnosis and Clinical Evaluation of Curability, South. M. J. **39**: 203-208 (March) 1946.

Hopkins Hospital, it was found that, prior to admission, 31 per cent of the patients had had symptoms from two and a half weeks to six months, and 50 per cent had had symptoms longer than one year. Third, after early and accurate diagnosis, the conservative treatment employed sometimes results in incomplete destruction of the tumor, and its growth may continue in the bladder wall beyond the range of cystoscopic visualization. Fourth, the diagnosis occasionally is missed in the case of a small, superficially infiltrating, sessile tumor, a specimen of which is not subjected to biopsy.

In summary, then, if one excludes an unnoticed recurrence caused by a persistent carcinogenic agent, two general causes exist for low curability: (1) late diagnosis, at which time there usually is extravesical spread, and (2) inefficacy of treatment, which allows a tumor without extravesical spread to persist, often unrecognized, in the bladder wall until it has extended extravesically or metastasized. Late diagnosis will be avoided only after more complete education of the members of the laity and the medical profession. Inefficacy of treatment will be recognized earlier and more frequently when the importance of an accurate appraisal of the entire pathologic picture is more fully appreciated. The efficacy of different methods of treatment under varying conditions will be demonstrated by the results obtained in the case of potentially curable tumors; that is, in cases in which there is no evidence of local extravesical extension or metastasis.

PATHOLOGY

In order to determine the conditions under which extravesical extension and metastasis occur, Dr. George H. Strong and I, in 1944, studied a series of 107 cases of infiltrating carcinoma of the bladder on which autopsies had been performed at the Johns Hopkins Hospital.[2a] We separated the cases into three groups (table 1): Group A comprised those in which penetration was limited to the submucosa. Group B consisted of those in which infiltration had extended into, but not through, the muscularis. Group C included all cases in which tumor cells had extended completely through the muscularis. We then determined in each group the number of cases with metastases, the number showing local lymphatic invasion only and the number with perivesical fixation of the mass. In each group the number without these three evidences of tumor spread gave us our figure for potential curability, which naturally represented only a theoretic possibility. Although the figure for potential curability is probably too high in each category,[3] the wide discrepancy between that in group B and that in group C is significant. Metastasis and extravesical extension are frequently associated with group C tumors and explain the low curability in this group following all methods of treatment.

Of the 89 cases comprising group C, regional or distant metastases were reported in 52. The cardinal sites and the frequency with which they were involved are indicated in table 2.

In 1945, the late Dr. S. S. Blackman of the Department of Pathology and I made a critical study of the histopathology of the tumors and their metastases in our series of autopsy cases.[4] The purpose of this study was twofold: First, to understand better the biologic characteristics of each individual tumor, and second, to see whether the correlation of the microscopic anatomy of the tumor with its degree of penetration of the bladder wall would have any bearing on the incidence of metastasis.

Without any preconceived ideas in regard to classification, we examined histologically 97 of our 107 autopsy cases, in which the pathologic material was suitable for detailed microscopic study. Only 48 of the primary tumors consisted of a homogeneous histologic pattern with practically the same degree of cellular differentiation throughout the available sections. Twenty-six manifested a homogeneous pattern but showed variation in the degree of cellular differentiation. In the remaining 21 cases the primary tumor was papillary in some places and epidermoid in others, and in some of these cases there was also a considerable variation in the degree of cellular differentiation.

TABLE 1.—*Relation of Curability to Depth of Infiltration in One Hundred and Seven Autopsy Cases*

	Infiltrating Carcinoma of Bladder		
	Group A	Group B	Group C
Number of cases	3	15	89
Metastases	0	1	52
Perivesical lymphatic invasion only	0	1	6
Perivesical fixation only	0	0	8
Potentially curable	3	12	23

TABLE 2.—*Cardinal Sites and Frequency of Metastasis in Group C, with Metastasis in Fifty-Two of Eighty-Nine Cases*

Site of Metastasis in 52 Cases	Number of Cases
1. Regional nodes	32*
2. Liver	26
3. Lungs	18
4. Vertebra, including pelvis	11
Other sites	20

Other sites involved in only 4 cases without involvement of sites 1, 2, 3 or 4.

* Nodes negative in 19.

Seventy-five of these cases were uniformly papillary, epidermoid or totally undifferentiated carcinoma throughout the available sections. However, we were able to demonstrate variation in the degree of cellular differentiation in 53 of the papillary and epidermoid carcinomas. Since variation in the degree of differentiation throughout a single tumor makes accurate classification on such a basis impossible, it seems obvious that infiltrating carcinomas of the bladder cannot be so classified with any degree of accuracy.

It therefore seems justifiable, from the evidence so far obtained, to segregate the tumors according to the three major categories, papillary, epidermoid and undifferentiated carcinoma, and in the papillary and epidermoid groups to record the poorly differentiated varieties. A section, however, which shows only a well differentiated carcinoma may be misleading, for in another area of the same tumor the cells may be totally undifferentiated.

The correlation of the microscopic anatomic structure of these tumors with the depth to which they had

2a. Footnotes 1b and 2.

3. A higher incidence of metastasis undoubtedly would have been found among these autopsy cases if all grossly normal regional lymph nodes had been sectioned.

4. Jewett, H. J., and Blackman, S. S.: Infiltrating Carcinoma of the Bladder: Histologic Pattern and Degree of Cellular Differentiation in Ninety-Seven Autopsy Cases, J. Urol. 56: 200-210 (Aug.) 1946.

penetrated the bladder wall was of considerable significance. In group A (table 1) only 2 of the 3 cases were suitable for accurate classification. One was fairly well differentiated papillary carcinoma, and the other, poorly differentiated papillary carcinoma. Neither had metastasized.

Table 3 shows the histologic classification of the tumors comprising group B, and table 4, those comprising group C. A comparison of these two tables shows that undifferentiated carcinoma did not appear among the small number of cases comprising group B and epidermoid carcinoma predominated in group C. With these exceptions, however, the microscopic anatomy of the tumors in these two groups was much the same, but local lymphatic invasion and metastasis were infrequent in group B. It is possible that they would have been more frequent if the highly malignant, undifferentiated carcinomas had been present.

The ability to invade lymphatics depends on the malignancy of the tumor. But the presence or absence of lymphatic invasion in the case of a tumor of known

TABLE 3.—*Histologic Classification of Fourteen Tumors in Group B*

	Primary Tumor	Metastases
Papillary carcinoma	10	1
Epidermoid carcinoma	4	0
Undifferentiated carcinoma	0	0

In the papillary group 4 tumors were poorly differentiated, and 1 of these had metastasized.
In the epidermoid group 2 were poorly differentiated, and neither had metastasized.

TABLE 4.—*Histologic Classification of Eighty-One Tumors in Group C*

	Primary Tumor	Metastases
Papillary carcinoma	28	11
Epidermoid carcinoma	35	22
Undifferentiated carcinoma	18	15

In the papillary group 13 tumors were poorly differentiated, and 5 of these had metastasized. In the epidermoid group there were 22 cases in which the tumors were poorly differentiated, and of these 16 had metastasized.

malignancy is governed largely by accident. Since the tumors in group C are larger and the lymphatics in their environment are larger and more numerous,[1b] the opportunity for metastasis is greater in this group.

It therefore may be said that the cellular appearance alone of an infiltrating carcinoma of the bladder indicates neither the presence nor the absence of metastasis. However, when the tumor is known to be deeply infiltrating, the poorly differentiated papillary carcinomas have metastasized in nearly half the cases,[3] the poorly differentiated epidermoid carcinomas in at least three fourths, and the undifferentiated carcinomas in practically all the cases.

For the clinical application of all these pathologic data, it is necessary that the diagnosis in each case be complete. The mere observation that a tumor exists in the bladder is not sufficient. The entire pathologic condition must be appraised.

SYMPTOMATOLOGY

The diagnosis will be made earlier when the patient and his physician fully appreciate the disastrous consequences of apathy toward slight hematuria or vesical irritability, especially in patients over 40 years of age. In a previous report [2] it was emphasized that cancer of the bladder claims 3.2 per cent of all persons dying of malignant disease. In this same report it was shown that, in our series of 107 cases, the presenting symptom was hematuria in 66 (61.7 per cent) and vesical irritability (frequency, urgency and pain on urination, usually with pyuria) in 34 (31.8 per cent). One or the other, but not both, of these 2 symptoms was present in 87 (81.3 per cent) of the cases.

DIAGNOSIS

The diagnosis is necessarily incomplete unless three specific procedures are carried out. These are cystoscopy, biopsy and bimanual palpation.

1. *Cystoscopy.*—The recognition of tumor of the bladder usually rests on cystoscopic inspection of the gross characteristics of that portion of the mass lying within range of visualization. Its size, location and margins must be noted. Most cases are recognized as pedunculated or sessile and may or may not be associated with edema, necrosis and ulceration with fibrin or calcareous deposition and hemorrhage. Papillary cystitis, bullous edema and simple ulceration occasionally make accurate diagnosis difficult.

2. *Biopsy.*—In questionable cases the diagnosis is established by a properly taken biopsy specimen. A good sized piece of tissue, including some muscularis, should be removed under anesthesia, preferably with a cold rongeur. In the case of pedunculated tumors the piece should be taken immediately beneath the base of the pedicle (figs. 1, 2 and 3). In this case a specimen of superficial tissue for biopsy would have led to the diagnosis of benign papilloma, whereas beneath it, in the wall of the bladder, lay a moderately differentiated epidermoid carcinoma.

The inclusion of some muscularis in the properly taken biopsy specimen establishes the presence or absence of infiltration as well as the diagnosis of tumor. The clue to the prognosis, however, is not furnished by biopsy alone, for it must be borne in mind that this tissue represents only a relatively small part of the whole tumor. Poorly differentiated carcinomas, when deeply infiltrating, have metastasized in the majority of cases. When they are superficially infiltrating, metastases from these tumors are infrequent. Carcinomas which appear well differentiated in biopsy sections may actually be poorly differentiated in other areas.[4]

3. *Bimanual Palpation.*—With the diagnosis made, and with infiltration established by biopsy, the next step is to determine the extent to which the tumor has penetrated the bladder wall. Since deeply infiltrating tumors in over 80 per cent of the cases cause stony, hard induration, and since superficially infiltrating tumors practically never cause stony induration, the clinical segregation of these two groups of cases will depend largely on accurate palpation. In the male, this is best accomplished rectoabdominally under anesthesia deep enough to achieve complete muscular relaxation.[5] In the female, simple pelvic examination usually suffices.

The significance of the observations is as follows:

1. Extravesical extension, with or without fixation, is readily recognized and indicates incurability.

2. Stony induration without evidence of extravesical extension indicates the presence of metastasis in the

5. Jewett, H. J.: Carcinoma of the Bladder: The Importance of Recto-Abdominal Palpation Under Anesthesia in the Selection of Cases for Total Cystectomy, J. Urol. 49:34-41 (Jan.) 1943.

great majority of poorly differentiated tumors and in nearly all undifferentiated tumors.

3. Rubbery induration without extravesical extension denotes a slightly lower incidence of metastasis. In cases of this type, if undifferentiated carcinoma can be excluded, complete destruction or extirpation of the primary growth should result possibly in a higher percentage of cures.

4. No palpable induration, with the patient under completely satisfactory anesthesia and relaxation, indicates in practically all cases absence of metastasis and therefore a high potential curability.

Roentgenograms of chest, spine and pelvis, excretory urography and the examination at laparotomy of the bladder, regional lymph nodes and liver complete the appraisal of the gross pathologic condition.

Fig. 1.—Photomicrograph of a section of bladder wall showing papillomas on the surface and infiltrating carcinoma in the underlying tissues.

In cases without metastasis and extravesical extension a good prognosis presupposes complete eradication of the tumor of the bladder and early, adequate treatment of future recurrences.

SUMMARY

Incurability in infiltrating carcinoma of the bladder depends largely on metastasis and extravesical extension. These may occur before, during or after treatment. The efficacy of the treatment can be evaluated only when these factors can be excluded before treatment. This can be done with a fair degree of accuracy only by clinical appraisal of the entire pathologic condition, of which the most significant component is the extent to which the tumor has penetrated the bladder wall.

Deeply infiltrating tumors are associated with a high incidence of metastasis and as a rule cause stony induration, which usually can be felt by bimanual palpation with the patient under anesthesia. When tumors of this type are poorly differentiated they probably have metastasized in nearly all the cases.

Superficially infiltrating tumors produce in the bladder wall a consistency varying from normal to rubbery. In these tumors the incidence of metastasis is low except perhaps in the case of undifferentiated carcinomas.

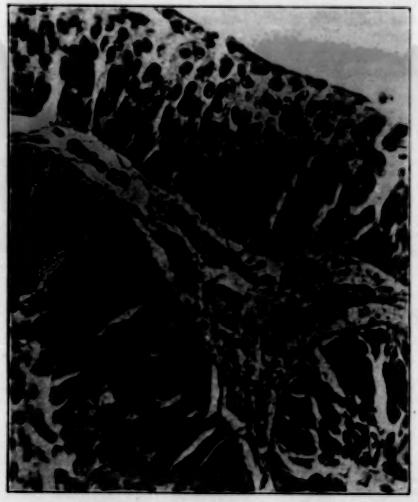

Fig. 2.—High power view of section of benign papilloma in fig. 1.

Fig. 3.—High power view of moderately differentiated epidermoid carcinoma in the bladder wall beneath the benign papilloma in figs. 1 and 2.

CONCLUSIONS

In infiltrating carcinoma of the bladder an evaluation of all the obtainable data concerning its gross and microscopic characteristics will indicate, with a fair degree of accuracy, the presence or absence of metastasis and extravesical extension. When these are absent, a good prognosis will depend on complete destruction or extirpation of the tumor and adequate treatment of future recurrences.

ENDOSCOPIC TREATMENT OF TUMORS OF THE BLADDER

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The purpose of this paper is to present some of the advantages of the endoscopic method of resection of tumors of the bladder. It is by no means proposed that all such tumors be treated by endoscopic means. It is recognized and admitted that open operation is the method of choice in certain types of tumors of the bladder, especially if they are located in the free portion of the bladder. In the majority of these tumors, however, treatment by means of endoscopic surgery offers more satisfactory results than open surgery.

In successful management of tumors of the bladder the most important factor is early diagnosis. Tumors which are discovered in an early stage are more likely to be curable by endoscopic means. Tumors found early are less likely to be infiltrating, are more likely to be pedunculated. Tumors found early are less likely to be malignant. Although these facts have been emphasized repeatedly, patients are still being seen with tumors of the bladder who have had hematuria for months and in some instances for a year or longer. The family physician must insist on immediate cystoscopic examination of the patient when blood appears in the urine. To fail in this is to be guilty of malpractice. The value of early endoscopic examination to determine the source of blood in the urine cannot be overemphasized. The danger of delay cannot be overemphasized. We must continue to call attention to this fact again and again.

In considering the treatment of tumors of the bladder by endoscopic means, two main groups are recognized. In the first group we place tumors that are considered curable. In this group are nonmalignant papillomas, pedunculated malignant papillomas, small elevated carcinomas either noninfiltrating or of the early infiltrative type, possibly only through the mucosa.

In the second group we place tumors that are not considered curable. In this group are extensive malignant papillomas, extensive carcinomas and recurrent nodules following previous operative intervention. Treatment in this group is palliative, but, as will be shown, is by no means hopeless.

When seen sufficiently early practically all tumors of the bladder fall into group 1 and are curable. Endoscopic resection of the tumor with wide and deep destruction of the base is the method of choice in the treatment of these early tumors.

Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

Technic: The Stern-McCarthy resectoscope activated by the electrosurgical unit is the apparatus customarily used. A short beaked sheath is preferable to the standard length sheath.

The end of the standard resectoscope sheath projects over and beyond the loop and often prevents thorough resection of a tumor mass, especially when it is located in a concave portion of the bladder. With the end of the beak cut off or shortened the operator can get the loop of the resectoscope closer to the tumor and can thoroughly resect and even excavate the base of the tumor. The resection of the tumor base should be extended through the mucosa and at least half through the muscle of the bladder. The resection should extend ¼ to ½ inch (0.5 to 1 cm.) wide on all sides beyond the base of the tumor. Fulguration of this area should be thorough. Rest of the bladder by insertion of a retention catheter should be maintained for three to four days, after which the catheter may be removed. From six weeks to two months after the resection the bladder should be inspected. The whole bladder as well as the previously resected area should be examined. Regular inspection must be made at three month intervals for three years and then at four month intervals for two or more years longer. An added precaution is yearly inspection of the bladder even after five years have elapsed without recurrence. Provided no recurrences are observed in this time the patient may be considered cured. Destruction by fulguration of any recurrent small tumor masses can usually be performed in the office. As a rule the recurrent tumor does not get sufficiently large between inspections to necessitate more radical treatment.

Examples of tumors of the bladder entirely cured by endoscopic resection are numerous in the experience of almost every urologist. A few cases will suffice to illustrate.

CASE 1.—Mr. J. E. H., aged 39, came in three weeks after blood was noticed in the urine. A small tumor in the left side of the bladder just outside the trigone was resected, and the base was fulgurated. Microscopic examination of the tissue showed papillary carcinoma, grade 2. Regular cystoscopic examinations have been made for six and a half years. No recurrence has been found.

CASE 2.—Mr. W. H. S., aged 63, first noticed blood in the urine six weeks before coming in for examination nine years ago. Cystoscopic examination revealed a mass approximately 2 cm. in diameter just lateral to the right ureter. The lateral lobe of the prostate gland was seen to be pressing into the urethra from each side. Complete resection and fulguration of the base of the tumor was done. The prostate gland was resected at the same time. Microscopic studies showed that the tumor of the bladder was a papillary adenocarcinoma, grade 3. The prostatic tissue showed benign hyperplasia. This patient came back for regular cystoscopic inspections every three months for a period of three years. No recurrence was noted in this time. A report received from him two weeks ago states that he has moved to Florida and is well.

CASE 3.—Mr. L. P. M., aged 50, came in six years ago with blood in the urine of two months' duration. Examination revealed a tumor in the bladder above and lateral to the right ureter. Endoscopic resection of the tumor was done, and the base of the tumor was fulgurated thoroughly. Microscopic study revealed papillary carcinoma, grade 2. Cystoscopic examination six weeks later showed a slight ulceration still present at the site of the tumor. One month later the tumor site, although healed was fulgurated. Regular cystoscopic inspections have been made since, the last time two months ago. No tumor or evidence of tumor has been found. The importance of regular cystoscopic inspections is again demonstrated.

For extensive tumors of the bladder endoscopic resection is often the means of palliative treatment, sometimes even after the metastases have occurred. Bleeding may be checked, cystitis lessened and function of the bladder improved by endoscopic resection of tumor masses, even though cure or control of the tumor is impossible. The next 4 cases are examples of palliative treatment.

CASE 4.—Mr. E. D., aged 67, had been bleeding off and on for over twelve months. Examination revealed a large seminecrotic tumor mass almost filling the left side of the bladder. A cystogram after the injection of air was made, which showed that most of the bladder was occupied by the tumor. There was also grade 2 enlargement of the lateral lobes of the prostate. Metastatic areas were noted by roentgen examination in the lower part of the spine and sacrum. Endoscopic resection of the tumor mass and of the prostate gland was performed. The microscopic sections exhibited papillary carcinoma, grade 3. The prostatic tissue showed benign hyperplasia with fibrosis. This patient experienced great relief for over a year. This improvement and relief justified palliative endoscopic treatment for this man.

CASE 5.—Mr. A. M., aged 50, was seen twenty-nine years ago with hematuria of two to three months' duration. A papilloma was found in the bladder and fulgurated with the old high frequency current by my superior, the late Dr. Edgar Ballenger. This patient had recurrences from time to time, and during the succeeding twenty-six years 21 fulgurations were done. When last seen four years ago this man was 75 years of age and without evidence of tumor in the bladder.

CASE 6.—Miss R. C., aged 50, noticed blood in her urine eight months before being referred to us by her family physician. It is hard to understand the delay in reference of this case. Cystoscopic study showed extensive malignant tumor involving the dome and upper half of the lateral wall of the bladder. A subtotal cystectomy was performed, and all demonstrable tumor was removed. Microscopic studies revealed epidermoid carcinoma, grade 3. Three months later small recurrences were observed on inspection of the bladder. Endoscopic fulguration was performed in the office. This procedure was repeated eight weeks later, but the tumor was observed to be progressing rapidly, and endoscopic resection of the recurrent masses was then done with the patient under spinal anesthesia in the hospital. Further recurrences may be expected and may be treated by endoscopic resection as before. Provided regular inspections of the bladder are continued, these recurrences may be kept under control.

CASE 7.—Mr. E. W. S., aged 47, came in three years ago with a history of recurrent bleeding for twelve months. His family physician told him repeatedly to come in for cystoscopic examination during this twelve months. When he did come in the tumor was about the size of a lime and covered an area in the right side of the base of the bladder. The tumor was removed transurethrally, and the base thoroughly cauterized. He stayed away almost twelve months, and the tumor recurred. Another endoscopic resection was performed, and the patient has reported for inspection of the bladder regularly every three months since. A few weeks ago cystoscopic examination showed a small recurrent tumor mass near the site of the original tumor. The mass was small and was fulgurated in the office. It will be necessary for this man to continue to have regular inspections.

SUMMARY AND CONCLUSIONS

Endoscopic resection is one of the important methods used to control and cure tumors of the bladder. Palliative resections are useful when tumors are recognized late; they are justified in that morbidity is reduced and comfort and relief is afforded many patients with incurable tumors of the bladder. The highest degree of success is afforded when the tumor is recognized early. The importance of early diagnosis therefore is impossible to overemphasize. Hematuria demands immediate investigation as to the source. The family physician must insist on this investigation. Regular cystoscopic inspections at least four times a year are essential and must be insisted on for all patients who have had operations, whether open or endoscopic for tumor of the bladder. This policing job is a must for patients with tumor of the bladder.

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A COMPARISON OF RADIATION AND SURGERY FOR CANCER OF THE BLADDER

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Apparently there are no spontaneous cures of cancer of the bladder. Forber [1] reported the average duration of life, presumably from the time of diagnosis, of 33 untreated patients to be 18.8 months, while Welch and Nathanson [2] in a series of 28 untreated patients found that 14 had died in fourteen months, 21 had died in thirty months, and 25 had died by the end of five years. The average age of 302 patients of this series was 59.4 years, for which age group statistics compiled by a life insurance company for the general population show a life expectancy of 15.49 years; approximately 88 per cent survive five years. It is obvious, therefore, that untreated cancer of the bladder is a highly fatal disease. Though perhaps not so rapidly lethal as pulmonary and gastric cancer, the situation existing five years after diagnosis is nearly the same. Furthermore, the morbidity associated with tumors of the bladder is great. The fact that there are numerous methods for treatment suggests that none are highly successful. In general, the therapeutic procedures can be divided into two classes: those in which reliance is placed on radiation, and those in which reliance is placed on surgical procedures. No doubt these methods will be improved on, and endocrine and chemical therapy may be added as knowledge of these methods of treatment increases.

Radiation therapy has much to recommend it. Since some cancers have been found definitely radiosensitive, and since the bladder is sufficiently accessible for a reasonable dosage to be delivered, treatment by radiation seems to offer hope on a theoretic basis. Furthermore, some vesical neoplasms have been cured by radiation in actual experience. The immediate mortality is low, and with radon seeds and x-ray machines readily available, the method is convenient for both physician and patient. If radiation is given to the ambulatory patient the turnover in the hospital census may be rapid, allowing a larger number of patients to be treated in the surgeon's time, as compared with the time required for purely surgical therapy. The suffering ambulatory patient is usually less of a burden to the urologist than the miserable inpatient whom he must see daily. Mastery of the technic of radiation is not difficult to acquire by consulting one of several published plans, which are based on sound physical principles; or, even more easily, the precarious respon-

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Read in a symposium on "Urinary Vesical Tumors" before the Section on Urology at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 3, 1946.

1. Forber, J. E., in Annual Report of the British Ministry of Health, London, His Majesty's Stationery Office, 1931.
2. Welch, C. E., and Nathanson, I. T.: Life Expectancy and Incidence of Malignant Disease, Am. J. Cancer 31: 586-597, 1937.

sibility for treating these patients may be divided with a radiologist! The surgical skill necessary for the implantation of radon seeds, or radium, into the bladder is rudimentary. The operative time is brief. With all these qualities the radiation method of treating carcinoma of the bladder appears most tempting. Accordingly, it has been popular. Now that a fairly large group of patients has been enthusiastically treated by radiation, it seems only proper to take stock of the results obtained. What percentage of the whole number of patients, whose disease was accurately diagnosed, survived five years? How many not only survived but were apparently free of disease five years after diagnosis, when they had been treated by radiation? What was the morbidity? Did patients die of the treatment rather than in the natural course of the disease?

Three hundred consecutive cases of neoplasms of the bladder from 1932 to 1938 inclusive were under the care of the Cornell staff at the New York and Memorial hospitals. In all these cases the lesions have been biopsy-proved to be neoplasm, although it is possible that a few papillomas with atypical features may have crept into the group classified as cancer. Incidentally,

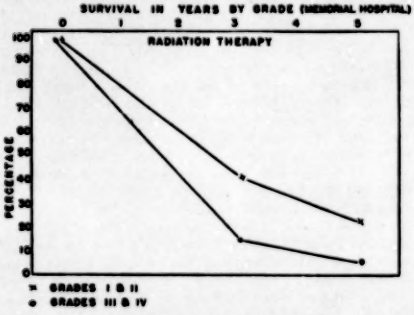

Chart 1.—Survival after radiation therapy.

the results obtained in cases of benign papillomas were much poorer than anticipated. The pathologic diagnoses were made by Dr. N. C. Foot of the New York Hospital and Drs. Fred W. Stewart and Frank Foote at the Memorial Hospital. In a large number of cases, including all the possible cures, the slides were reexamined. In many instances the slides were examined by all three pathologists with little essential variation in diagnosis. These pathologists do not call simple papilloma grade 1 cancer, and in general their opinions label the grades lower than do many pathologists, including the Bladder Tumor Registry. In fact the use of the Bladder Tumor Registry reports would definitely improve the results in this study by allowing the inclusion of lower grade lesions in higher grades and by allowing many papillomas to be grouped as cancer. No known case was excluded in which a diagnosis of vesical cancer was made, except for approximately 3 to 5 cases, constituting 1 per cent or less, in which the charts of the patients were so incomplete as to be virtually worthless for study. This small exception is more than favorably offset by the inclusion of a few long-term cures being currently followed: that is, cases first observed before 1932 in which the patients have been seen during the last three years. Roentgen, radium and radon therapy were readily available in a variety of forms, although supervoltage radiation was not then available. An early impression of the results obtained by supervoltage radiation, however, is that there is little difference from the results obtained before its use. In brief, the method used was the implantation of radon seeds into the base of the tumor, usually after the excision of the more superficial portion, followed by roentgen radiation delivered around the pelvis. Gold radon seeds, averaging 1.5 millicuries each, were placed 1 cm. equidistant from each other and approximately 0.5 to 1 cm. beneath the surface and into an area 1 to 2 cm. wide of normal-appearing tissue about the margin of the tumor. Technical considerations mainly determined whether the implantation should be suprapubic or cystoscopic, though cystotomy was favored as allowing greater accuracy, particularly for the larger lesions. Roentgen radiation was usually given to six large portals around the pelvis by a 200 or 250 kilovolt machine at 50 to 70 cm. target skin distance, approximately 2,000 r in air to each portal. Recurrences were treated by additional radiation, either radon seeds, roentgen radiation, or both. The end results do not seem to have clear correlation to variations in technic but rather do seem to have correlation to the general size and type of tumor, as will presently be pointed out. Occasionally, roentgen radiation was omitted altogether, but the reason for this is not evident, in view of the enthusiasm for this method which prevailed during that time.

Table 1.—*Comparison of Survival Rates*

	General Population for Same Age	Cancer of the Bladder	
		No Treatment	By Radiation
Average survival	15 years	18.8 mo.	24.5 mo.
Percentage surviving 5 years	88	10	17.3
Percentage of 5 year successful results	—	0	5-6

Of the 300 patients with cancer of the bladder only 52, or 17 per cent, were known to have survived sixty months or more after the time of the diagnosis. Two hundred and forty-two, or 80.6 per cent, were known to be dead at some time in the follow-up, and on only 24, or 8 per cent, there was no reliable record in regard to the five year survival. Accordingly, the follow-up is fairly accurate for this category, so that by the radiation methods used in the thirties a 15 to 20 per cent five year survival was obtained.

Table 2.—*Two Hundred and Fifty-Five Cancers (Not Papilloma) Graded at Memorial Hospital*

11.4% were grade 1	45.9% were grade 3
33.3% were grade 2	9.4% were grade 4

Of the 300 patients with vesical cancer 6 were dead of other causes before the fifth year anniversary, without evidence of neoplasm at the time of death—2 per cent. Three were lost track of, without recurrence—1 per cent. These 9 cases are classified as of indeterminate result, leaving 291 cases on which to base the calculations in this study. Known to be dead as a result of the disease, its complications or treatment are 232, or 79.7 per cent. Twenty-one with disease were

lost track of and are considered therapeutic failures; and 11 were living at the five year anniversary, but with disease. Thus the results in 264 of the determinate group of 291 cases are considered failures at the time of the five year anniversary—90.8 per cent. Twenty-seven patients, or 9.2 per cent, were alive and by fair evidence had no neoplasm at the end of five years, although it cannot be said that each of these 27 patients would stand a severe reexamination as to whether they were unquestionably cured. Ideally, there should be no signs or symptoms of tumor of the bladder by all methods of examination, including cystoscopy, on or shortly after the five year anniversary. Practically, the record indicated that there was no tumor found at the last examination, that the patient was definitely alive at the end of five years and that the patient's condition on that anniversary did not suggest persistent or recurrent tumor. The majority of the patients who survived five years were seen in person, but a few answered letters. Almost none of these 27 patients could be regarded as free of disease throughout the five year period, but rather it is meant to say that on the date five years after diagnosis of the disease the record would permit reasonable interpretation of the patient's condition as free of neoplasm. In at least 5 instances the records were not completely satisfactory, but by liberal allowances the patients could be termed free of disease. In 3 or more cases there is some doubt

TABLE 3.—*Radiation Survival by Grade (Complete Follow-Up for Three Years or More)*

	Average, Mo.	3 Years or More Percentage at
Grades 1 and 2 (107 cases)	35.1*	40.2
Grades 3 and 4 (132 cases)	21.1	15.1

of the pathologic diagnosis of cancer as opposed to papilloma. Three patients were apparently free of disease because of a total cystectomy performed after the failure of radiation therapy. At least 5 have died since the five year anniversary, and some of these had definite symptoms of cancer. In other words, only 10 to 15 of the 27 cases of supposed cure can stand under cross examination as cures most likely effected by radiation: approximately 6 per cent of the entire series.

During the era of enthusiasm for radiation, the high morbidity is attested by several items. In 102 consecutive cases at the New York Hospital, 16 patients, or 15 per cent, required unforeseen operations on the upper part of the urinary tract for acute serious processes and not for the autonephrectomy type of lesion. The originally held opinion that radon seeds placed near a ureteral orifice would not cause obstruction, and that if obstruction did occur this would be due to tumor, has been disproved many times; especially has it been the more frequently disproved as follow-up intravenous pyelograms have been made. The vast majority of patients had severe symptoms of cystitis, many lasting several months and some, several years. Contracted bladders, calcific incrustations, actual vesical calculi and poorly healing cystotomy wounds were not unusual. In at least 2 patients there developed fecal fistulas, and in 4 communications developed between the bladder and the vagina. Radiation proctitis, varying degrees of incontinence, late radiation ulcerations of the skin and chronic edema of the genitalia, while not common, were by no means infrequent. Diversion of the urinary stream for symptomatic relief seemed to be performed more commonly as the series increased, but even so 3 patients had cystectomies performed to prevent exsanguination after radiation therapy and urinary diversion had been accomplished. Of course, metastases and local extension of cancer were commonly seen. These considerations should not imply that all this morbidity resulted from the radiation rather than from the disease, but certainly an extensive morbidity was not avoided by radiation, and probably some was added.

A problem which frequently arose was the difficulty of determining whether tumor still existed beneath the inflammation and slough. This is also one of the difficulties encountered in compiling the statistics.

Undoubtedly some of the patients died from the treatment rather than from the disease, as some mortality, however slight, results from almost any form of treatment. How frequently this untoward situation occurred is difficult to say, but some known facts do throw a light on the matter. Of 53 autopsies, including a few apparently accurate reports on cases from other institutions, no metastases were found in 23; 27 did have metastases, while in 3 no statement in this regard appeared in the record. In other words nearly half of the fatal and completely studied cases in these institutions, which are not primarily for terminal care, did not have metastases sufficiently developed to be recognized at autopsy. At any rate, nearly one half of these dead patients died not of carcinomatosis but primarily of sepsis and obstruction of the upper part of the urinary tract, except for the few dying of such relatively unconnected causes as embolism and coronary thrombosis. It seems apparent, therefore, that the rate of survival would have been definitely improved if the upper portion of the urinary tract had been protected from obstruction and infection. In fact, this protection was lacking to such an extent that a significant number of patients died from this lack, some of whom might otherwise have been cured. If a method could be devised for protecting the kidneys, more cures and certainly longer survivals could be accomplished, whether the treatment of the neoplasm was by radiation therapy or by surgical intervention. Penicillin and sulfonamide drugs will be valuable aids but hardly the main solution to the problem, as mechanical obstructions and sloughing neoplastic tissue are the natural prime causes of infection in this disease, to which the trauma of radiation is so often added.

Hospital mortality after the implantation of radon seeds by cystotomy was approximately 5 per cent, which indicates that only a small portion of the poor results can be attributed to the surgical procedures involved, especially as one remembers that death after operative intervention in a patient with cancer does not by any means indicate that death was due directly to the surgical maneuvers. Since only 15 to 20 per cent of the patients survived five years and only 6 per cent were cured in five years, the average survival time for the radiation-treated cases should be expected to be low. As has already been pointed out from the literature, the average survival, apparently from the time of diagnosis, of untreated patients was nearly nineteen months. The life expectancy for the general population of the same age was approximately fifteen years. With 287 patients (some more recent than 1938) having a complete follow-up of three years or more, death before that time being considered complete also, the average survival was 27.1 months from

the time of diagnosis at Memorial Hospital. On the same basis the first 29 patients at the New York Hospital seen after 1932 survived an average of twenty-two months. It seems, therefore, that radiation treatment increased the survival of this group as a whole about six months beyond that of untreated cases but still leaves the group about thirteen years behind the average expectancy of the general population. Occasional cures raised the average, and no doubt less specific measures than radiation itself, such as chemotherapy, played an important role. In brief, it is most difficult to show that radiation therapy significantly benefited the group as a whole from the point of view of average survival.

Perhaps a high percentage of extremely malignant tumors has hidden good results obtained by radiation in the numerically smaller group of tumors of lower grades. Accordingly the composition of a group of 377 roughly consecutive and unselected tumors, including for the moment only papillomas, at the Memorial Hospital from 1932 to 1941 was determined on the basis of the histologic grade of cancer; 132, or 32.2 per cent, were diagnosed benign; 29, or 7.6 per cent, grade 1 cancer; 85, or 22.2 per cent, grade 2; 117, or 31 per cent, grade 3, and 24, or 6.3 per cent, grade 4. Of the 255 histologic cancers of this group, 11.4 per cent were grade 1, 33.3 per cent grade 2, 45.8 per cent grade 3 and 9.4 per cent grade 4. It can be seen that nearly half of the cancers were of grade 3, which, if grading is significant, should have a direct bearing on results and in an unfavorable direction. However, the grade 4 lesions were fortunately few, so that the group of grade 1 and 2 lesions is nearly as large as that of grade 3 cancers. Thus, there is not an overwhelming preponderance of decidedly malignant tumors.

The records of 107 unselected and roughly consecutive cases at the Memorial Hospital, in which the disease was originally diagnosed three or more years previously as grade 1 or 2 cancer, showed the average survival to be 35.1 months, with only 43 patients, or 40.2 per cent, known to survive three years or more. On the same basis 132 patients with grade 3 or 4 lesions survived an average of 21.1 months, with only 15.1 per cent known to survive three years. It can be seen that the composition of the group as to grade of cancer can make a difference in the results for the whole series, but considering that less than half of the patients with low grade lesions survived even the relatively short time of three years, the results obtained by radiation are poor regardless of the histologic composition of the group as a whole.

The classification of tumors of the bladder by histologic grading alone has severe weaknesses. In the present study it has been used for two reasons. First, this is the one characteristic of the tumor which was most constantly present and specifically stated in the records. Second, this quality of the tumor represents the opinion and knowledge of an independent, nonurological observer, who could reproduce the diagnosis on review of the sections as unknowns and whose grading does have a general correlation with the results obtained in these cases.

During this investigation some outstandingly good cases were discovered. Although every record on vesical tumor was not consulted, over 500 were examined. Nine cases of survival for ten years were set aside for further study. Two lesions were simple papillomas; 1 was diagnosed as papillary cancer but was not graded; 3 were grade 1; 1 was grade 2, 1 was probably grade 3, and only 1 was definitely grade 3. Only 2 of these lesions could be classified as anything but small, these 2 being estimated at 4 cm. and 2 cm. in diameter, respectively. Apparently, radiation therapy was responsible for the long survivals in these cases, even though they were rarities.

In summary, there are no five year cures of untreated cancer of the bladder, but approximately 10 per cent of patients may survive five years. On the other hand, 6 per cent of the radiation-treated patients were cured at five years, and 17.3 per cent survived five years. Approximately 90 per cent of patients with untreated cancer of the bladder die within five years, whereas 80 per cent of the radiation-treated patients were known to be dead in five years. Morbidity in both the treated and untreated series was decidedly high. The average survival without treatment was 18.8 months, while the average survival of the group receiving radiation therapy was 24.5 months, compared to a life expectancy in the general population at the same age of approximately fifteen years. All the untreated patients must have died with cancer, although not necessarily of carcinomatosis. In 43 per cent of the autopsies on the radiation-treated patients, metastases were not sufficiently developed to be discovered, indicating that these patients did not die of carcinomatosis. Those with grade 1 and 2 malignant lesions survived, on the average, better than did those with grade 3 and 4 cancer in the radiation series. However, patients with cancer of grades 1 and 2 survived poorly, as indicated by the fact that less than half were known to have survived three years. A small number of ten year survivals, which were apparently obtained by radiation, seems to indicate that it is possible for radiation therapy to cure cancer of the bladder, even though such results are uncommon. Perhaps the very nature of the disease will not permit significant improvement with any armamentarium now available, but these results are so poor even after fairly extensive trial that it seems justifiable to attempt therapy by a different method. If the new method should prove a total failure, the loss to the whole group of patients with cancer of the bladder would be hardly extreme.

The surgical treatment of vesical urinary tumors varies from such relatively simple procedures as cystoscopic fulguration to such extensive measures as transplantation of the ureters and total cystectomy. Few internal cancers are cured by simple local destruction of tissue, and experience with cancer of the bladder does not indicate a major exception. Although I was once of the impression that several small malignant neoplasms had been cured by fulguration, cystoscopically or via cystotomy, critical reexamination of the cases revealed that most of the lesions were histologically simple papillomas which could not be included in the cancer classification. The most optimistic conclusion from this reexamination was that infrequently a small and superficial, usually low grade, tumor had been apparently successfully treated by fulguration alone. But how to select such a case was obviously difficult, as evidenced by many failures in the treatment of seemingly perfect cases and, most infrequently, a good result in a seemingly poorly chosen case. As previously mentioned, the results of fulguration of benign papillomas were not as satisfactory as anticipated, though better than with cancers.

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The next more extensive surgical procedure after simple fulguration is resection of the bladder, which has been done in 33 instances. Three deaths occurred in the hospital after operation: 1 due to a cerebrovascular accident, 1 to clinical embolism and 1 to sepsis and carcinomatosis. The longest follow-up is fifty-two months, and many cases are relatively recent. Twelve of the 33 are known now to be dead. The average survival of 30, 3 having been lost after discharge, is 19.9 months, even though the follow-up period is less than twelve months in 14 cases and less than twenty-four months in 17. It will be recalled that patients with untreated vesical cancers apparently survived 18.8 months and the radiation group survived 24.5 months, in a more complete follow-up than is at present possible with this group of resection cases. Three patients with resection of the bladder have subsequently had total cystectomy performed, and 1 other has had a bilateral ureterointestinal transplantation. Eleven of the patients were known to have a recurrence or persistence of the cancer in the bladder. The impression is unavoidable that the lesions which were attacked were too large, and that too little margin was obtained. Reimplantation of the ureter to obtain adequate margin seems entirely justifiable,[3] but if this is done to remove the actual site of the tumor it appears unlikely that sufficient margin will be often obtained. A margin of 3 and preferably 4 cm. of normal-appearing bladder with the underlying perivesical fat would seem to be the minimal extent for a really hopeful resection. Naturally, in bladders with a tendency to multiple origination of neoplasm there would be a high recurrence rate. A rigid comparison cannot be made between the resection and radiation cases, as the resection cases are necessarily selected whereas the radiation cases in general were nearly unselected. On the other hand, it is evident that a small number of carefully selected cases of vesical cancer can be greatly benefited and possibly cured by resection, particularly if the surgeon's understandable desire to save the function of the bladder and avoid more immediately hazardous procedures does not weigh too heavily in the decision.

After partial resection of the bladder, total excision of the organ is the next more extensive step, but this necessitates a preliminary attack on that major urologic problem of the permanent diversion of the urinary stream. Bilateral nephrostomies are difficult to care for and, although urgently required at times, they carry considerable morbidity. This procedure has been used only in dire necessity.

Transplantation of the ureters to the skin is a relatively simple procedure, and relatively few patients die of the operation itself. Nearly all the postoperative deaths can be attributed to the patient's extremely poor preoperative condition. Morbidity from stricture and the formation of abscesses has been common. In occasional patients there have developed calculi. Indwelling catheters were used as a rule, but patients who can and will wear cups without catheters possibly have fewer complications later. At best, however, the patient must wear a cumbersome and untidy apparatus, requiring at least a moderate amount of care. At first, my cystectomy patients had cutaneous transplantations because it was considered that cystectomy was hazardous enough without adding the reported great risk of ureterointestinal transplantation. Subsequent experience proved that the immediate risk of ureterointestinal transplantation was not so great as anticipated, and certainly those patients with good bowel implants have been much more comfortable and clean than those wearing apparatus.

The early results of ureterointestinal anastomosis in the first 39 cases have been reported in some detail.[4] This series is now increased to 93 patients without appreciable variation from that report. The intraperitoneal Coffey I method was used exclusively, and the majority of patients had both ureters transplanted at the same operation. All but 8 operations were performed for the treatment, either curative or palliative, of cancer. The oldest patient was 82 and 6 were in their seventies. Twelve of the 93 patients died in the hospital between the time of operation and the time of discharge. Leakage at the site of anastomosis with resulting peritonitis caused the death of 2 patients. One patient died of small intestinal obstruction due to adhesions in the operative area. These 3 postoperative deaths are the only ones due to complications at the operative site or in the urinary or gastrointestinal tracts. Of the remaining 9 postoperative deaths, 3 patients died of congestive cardiac failure, 2 of embolism, 3 of carcinomatosis and 1 of the effects of a radical operation on a recurrent urethral carcinoma. Thirty-two of these patients, including the 12 just mentioned, are known now to be dead. Sixty-one have survived from one to fifty-six months. Temporary (two to six weeks) nephrostomy was performed on 3 patients postoperatively, but in all 3 instances prompt healing occurred on removal of the tubes, with no further diversion of the urine becoming necessary. One other patient is carrying nephrostomy tubes during her convalescence from cystectomy, but this case is so recent that the outcome cannot be accurately gaged. One patient subsequently required a nephrectomy, but he lived nearly two years with carcinomatosis after the removal of the kidney. One patient has had one ureter successfully implanted into the bowel a second time. Three patients have had one or both ureters transplanted from the bowel to the skin because of poor renal function. No doubt the transfer of the

TABLE 4.—*Data on Thirty-Three Patients with Resections of the Bladder*

Postoperative deaths	3
1. Embolism	
2. Cerebrovascular accident	
3. Carcinomatosis	
Lowest possible average survival	19.9 mos.
Still alive	21
Longest survival	52 mos.
Persistence or recurrence known	11

TABLE 5.—*Data on Ninety-Three Patients with Coffey I Ureterointestinal Anastomosis (Eighty-One in Patients with Cancer)*

Postoperative deaths	12
1, 2. Peritonitis	
3. Small bowel obstruction	
4, 5, 6. Congestive heart failure	
7, 8, 9. Carcinomatosis	
10, 11. Embolism	
12. Operation for perineal carcinoma	
Still alive	61
Longest survival	56 mos.

3. Stevens, A. R., and Marshall, V. F.: Reimplantation of the Ureter into the Bladder, Surg., Gynec. & Obst. 77: 585-594, 1943.

4. Marshall, V. F., and Gardner, J. S.: An Evaluation of the Coffey I Method for Uretero-Intestinal Anastomosis, Surg., Gynec. & Obst. 81: 559-574, 1945.

ureters from the bowel to the skin will become a necessity again as the series becomes larger, and perhaps in this series as time passes. However, the present pyelographic and blood chemical evidence does not suggest that the percentage incidence of diversion subsequent to ureterointestinal transplantation will materially increase. It should be pointed out that the possibility of transferring the ureters from the bowel to the skin is not entirely disadvantageous, since valuable although partial rectification of one type of failure after bowel implantation may be thus accomplished. Briefly, of the 81 patients discharged from the hospital, 1 has had a subsequent nephrectomy, 1 has subsequently had a second implantation of one ureter into the bowel, 3 have had one or both ureters transferred to the skin and 1 recent patient has had bilateral nephrostomies. The majority of the patients had an uncomplicated postoperative course and subsequently manifested no clinical evidence of renal disease. Most patients void every three to four hours in the day and twice at night with excellent control. Obviously these are more nearly normal and comfortable than those with ureterocutaneous anastomoses. Both transplant groups are too recent to allow an accurate estimation of comparative longevity,[5] especially as the vast majority of late deaths in both groups have been due to cancer rather than renal failure. Only 1 patient with ureterointestinal transplants appears to have died of renal failure thus far. This situation shows a significant difference from the radiation-treated group, in which a fairly high percentage died not of carcinomatosis but of urinary obstruction and infection. Paradoxically, the improvement consists in a higher percentage dying of cancer!

Table 6.—*Data on Seventy-Two Total Cystectomies for Neoplasm (Two for Recurrent Papillomatosis)*

Postoperative deaths	2
1. Paralysis from metastasis	
2. Pulmonary collapse	
Still alive	48
Longest survivals:	
Grade 3	68 mos.
Adenocarcinoma	66 mos.
Grade 3	60 mos.
Lowest possible number of 5 year successful results	3

Total cystectomy, like the other operations, has been performed both for palliation and cure. Seventy-seven such procedures have been carried out, but only 72 were done for neoplastic disease. Two of the 72 patients were operated on for multiple recurrences of histologically benign papillomas. The remaining 70 operations were performed for histologically-proved cancer. Two postoperative deaths occurred: 1 due to pulmonary collapse immediately after operative intervention on a patient with chronic bronchitis and 1 due to paralysis resulting from the collapse of a cervical vertebra due to metastases. Thus in total cystectomy 2 of the 72 patients with tumor and 2 of the 70 with cancer died. The longest survivals have been sixty-eight, sixty-six and sixty months, all by patients without evidence of cancer and still living. The original slides of these 3 patients have been reviewed; 2 were found to indicate grade 3 carcinoma, and 1 was an obviously malignant adenocarcinoma. Twenty-eight of the 70 cancer patients have survived a year or more, and 9 over two years. As far as is known 48 of these 70 patients are living and 22 are dead. Six of the 22 dead apparently died without cancer (with cardiac disease and so on), although this figure cannot be considered highly accurate. In spite of the fact that most patients were recently treated (45 of the 48 living patients were operated on less than five years ago), the immediate death at this time of all the patients having undergone total cystectomy would result in a five year successful result rate of 4.3 per cent. This, then, is the smallest possible rate of success for this group and, especially in consideration of the other factors previously mentioned, compares well with the 0 per cent obtained in untreated cases and the 6 per cent obtained by radiation methods.

My colleagues and I hope that we have improved our methods. In the beginning, cystectomies were done by the suprapubic route only, but in at least 1 instance there was a recurrence in a small bit of prostate which had been left. We now prefer perineoabdominal cystectomy, believing that we feel more certain of obtaining adequate margin by this procedure and that dependent drainage is a considerable asset in the postoperative course of the patient. However, the Belt approach to the prostate was used by one operator, who severely damaged 1 anal sphincter and weakened 2 others, so that these patients must wear pads to prevent urinary soiling which was not present before the cystectomy. None of the patients without the Belt approach has had poor anal control of urine and feces, so that we strongly favor the classic Young perineal approach with the exception that the dissection is purposely carried quite anteriorly, since injury to the external urethral sphincter in these cases is of no consequence and by so doing the anal sphincter is undisturbed. The perineal approach has not thus far led to a perforation of the rectum, while 1 such accident did occur in a difficult suprapubic prostatocystectomy. This preoperatively heavily-radiated, fulgurated and resected patient died four years after cystectomy without evidence of cancer, but at times he thought gas, though not feces, came out of a tiny sinus at the bottom of the deeply-depressed, heavy suprapubic scarring. In 3 instances the entire cystectomy was successfully performed via the vagina. At least 11 operations were performed on a purely palliative basis or as a heroic measure. The average survival of these 11 patients was 15.2 months, with 3 living

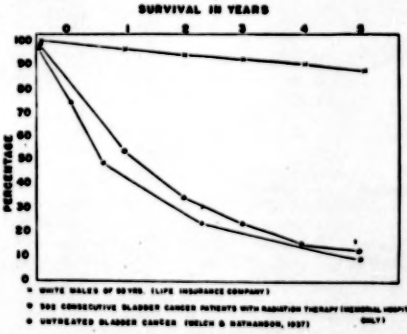

Chart 2.—Comparison of survival rates.

5. Stevens, A. R.: Longevity Following Uretero-Intestinal Anastomosis, J. Urol. 46: 57-66, 1941.

over three years and 1 living four years. Three of the 11 are still alive. Three times cystectomy seemed the only method to prevent exsanguination. The symptomatic relief obtained from cystectomy is impossible to gage closely, but certainly it was impressive in many cases. The relief from urinary diversion alone was often great.

Unfortunately a really accurate comparison of the various groups of patients here reported is impossible. In a radiation series all but moribund patients may be treated, but in a surgical series the local status in the genitourinary tract as well as the general condition of the patient makes some selection necessary even in palliative cases. However, we have been agreeably surprised at what some of these patients can stand surgically. For instance, 1 of these patients had a coronary occlusion just after incision, and the operation was deferred for six weeks. At the end of this time a bilateral ureterointestinal transplantation and later a perineoabdominal cystectomy were successfully carried out. In the tabulation of a radiation series, more can be attributed to the natural course of the disease than in a surgical series, in which a poor result following operative intervention will stand out, at least chronologically, to suggest that the surgical procedure itself has been the cause of the unsuccessful outcome, even though this is not actually true. However, the average survival figures suggest that surgery plays a small role in shortening the life expectancy of the whole group of cancer patients—if, indeed, the average is shortened rather than increased. The patients being treated by radiation can within wide limits be radiated almost indefinitely at one portal or another, whereas a failure after urinary diversion and cystectomy leaves little to be done surgically.

It is difficult to obtain series of each general method of treatment which represent the same degree of perfection in each particular method, as well as during the same progress in the associated fields of medicine. The nearest approach to an accurate comparison probably would be the result of a large series of vesical cancer admissions during a time in which radiation was apparently at its best and the personnel enthusiastic, compared to a similar series during a time of high surgical efficiency and enthusiasm. The method of compiling comparable series by a rigid alternation of cases would be valuable but since surgical and radiation technics do not necessarily make parallel or proportional chronologic improvement, one series might receive the best therapy for that type of treatment whereas the other might fall far short of showing the best its method had to offer. Also, the enthusiasm and efficiency of personnel cannot be so clearly estimated and relied on when two methods are being tried simultaneously as they can when a decision has been made to treat the overwhelming majority of patients by one method. It is necessary to be enthusiastic to make such a decision. It is not assured that the present strong tendency toward surgical intervention will produce decidedly better results than those with radiation therapy, but it is most unlikely that the results will be worse. Certainly, results will be better than those obtained without treatment.

This investigation does not indicate that radiation therapy should be totally discarded, if for no other reason than that cures have been obtained by its use. Also some palliation, mainly in late metastatic cases, has accrued. In some instances it probably is advantageous to use both methods of treatment, particularly after the obvious failure of one. This study seems to indicate that basing the main reliance in the treatment of cancer of the bladder on surgical methods will result, at the least, in a small increase in five year successful results, a moderate improvement in average survival and a really significant amount of palliation as compared with the results obtained by radiation methods.

THE SURGICAL TREATMENT OF CARCINOMA OF THE BLADDER

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One reads and hears many different opinions in regard to the treatment of carcinoma of the bladder. This is due in part to the variety of characteristics which malignant lesions in the bladder may present; hence the numerous problems which are created from the point of view of treatment. More reports of well controlled series of cases in which treatment is by various available methods and the patients are followed for an adequate length of time would help to clarify present opinions. Because of the many therapeutic approaches available, ranging from external irradiation or cystoscopic procedures to more extensive suprapubic operations, one is always confronted with the decision as to how radical the initial form of treatment should be. In reaching this decision it would seem that the chance of ultimate survival should be given equal consideration with the immediate risk of treatment. It should also be kept in mind that the best chance to cure cancer anywhere in the body always is the first chance. The seriousness of a given carcinoma of the bladder, the risk of one form of treatment as compared with another and the ultimate result that may be expected will be variously estimated. These are some of the reasons which make for difference of opinion in regard to indications for treatment.

This discussion is presented not with the misguided impression that it solves all the problems related to the treatment of vesical neoplasm but only for the purpose of recording the experience of one group and expressing a few personal opinions. In general it is my belief that a too conservative opinion exists regarding the treatment of vesical neoplasm. Cancer in other parts of the body is treated by extensive measures, even though the lesion when first discovered is only several centimeters in size. It seems reasonable that similar measures should be employed in treating cancer of the bladder. The use of roentgen therapy will not be discussed, as in my practice this is never the treatment of choice but is utilized only when other methods are impractical of application.

TRANSURETHRAL VERSUS SUPRAPUBIC SURGERY

One of the first decisions that must be made before the institution of treatment for a given patient who has a vesical neoplasm is whether a transurethral or a suprapubic approach is preferable. The small, noninfiltrating, low grade and well differentiated lesions

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are best suited to transurethral treatment. As one's experience with transurethral measures grows, somewhat larger lesions may be treated in this manner. The inherent limitations of this approach, however, always will circumscribe what can be accomplished by this method, and it has been the observation of my colleagues and me that even experienced cystoscopists frequently tend to underestimate the extent to which a vesical neoplasm may involve the wall of the bladder. This is due not necessarily to error on the part of the cystoscopist but to the fact that invasion of the vesical wall by carcinoma may occur without visible evidence on the mucosal surface of the bladder. The depth and extent of invasion in the vesical wall can be determined by the cystoscopist only by indirect and somewhat inferential methods. For this reason it seems safer to err on the side of favoring suprapubic exploration in questionable or borderline types of cases rather than transurethral measures, which time may prove to be inadequate. The details of transurethral treatment will not be discussed.

TABLE 1.—*Malignant Lesions of the Bladder: Suprapubic and Transurethral Procedures, 1940-1945 Inclusive*

Procedure	Operations	% of Total	Hospital Mortality Rate, %
Suprapubic	211	27.3	6.6
Transurethral	562	72.7	1.1
Total	773	100.0	2.6

The relative incidence with which transurethral and suprapubic procedures have been employed as the initial form of treatment in one clinic during the past six years is shown in table 1. I am not certain that this represents the desirable distribution. There has been a tendency gradually to use suprapubic procedures more frequently. Obviously the operative mortality rate of suprapubic treatment is higher than that after transurethral measures. It should be kept in mind, however, that in the type of case in which suprapubic operation is used the prognosis is invariably less favorable than in the one in which transurethral measures are used. Thus in the group of cases shown in table 1, of those in which transurethral measures were employed 85.1 per cent of the lesions were grade 1 or 2 (Broders' method) and only 14.9 per cent were grade 3 or 4. In contrast, in those cases in which the suprapubic approach was used only 37 per cent of the lesions were grade 1 or 2 whereas 63 per cent were grade 3 or 4. In deciding on the therapeutic approach, one must always consider not only the immediate mortality rate of a given procedure but also the chance it affords for ultimate survival of the patient.

Of the many details which should be considered in deciding on the most desirable form of treatment for an individual patient who has carcinoma of the bladder, the following might be mentioned: the size, location and grade of the lesion; whether it is pedunculated or infiltrating; whether the lesion is single or multiple; the presence or absence of involvement of one or both ureteral orifices; the status of renal function; the existence of serious renal infection, and the age and general condition of the patient. Obviously all these factors are subject to individual variations of interpretation, a fact which may be responsible for divided opinion in regard to the treatment of choice for an individual patient. The experience and capabilities of the surgeon who treats the patient also must be taken into account. In general, all except the smallest infiltrating lesions are managed best, in my opinion, by the suprapubic approach.

Along the same line of thought, transurethral procedures which, in the mind of the one who employs them, appear to be of questionable adequacy should be discouraged. A temporizing attitude in the treatment of cancer is fundamentally wrong. Fairly frequently one operates suprapubically for recurrent cancer of the bladder, which actually is a persistence of cancer after inadequate transurethral treatment. The chance of ultimate cure under these circumstances is less favorable than if the lesion had been treated originally by suprapubic measures. It is appreciated that not all suprapubic operations for cancer of the bladder will result in complete removal or destruction of the growth. However, in general a better opportunity to accomplish this is afforded by suprapubic than by transurethral procedures.

THE SUPRAPUBIC APPROACH

I am convinced that in any case in which a suprapubic operation is performed for vesical neoplasm intraperitoneal exploration should precede any direct attack on the bladder, as advocated many years ago by Dr. C. H. Mayo. The peritoneum should be opened through a low midline incision, and exploration should include the liver and periaortic and regional lymph nodes as well as the bladder (see the accompanying illustration). Without information obtained by this preliminary exploration, which is comparable to that performed in the treatment of cancer in other parts of the body, one does not know the local extent of the growth or whether regional extension or distant metastasis has occurred. Without this knowledge it is impossible to select the type of surgical procedure best suited to the individual patient and to know whether

Transperitoneal abdominal exploration is performed as a preliminary step in the surgical treatment of vesical neoplasm. The peritoneum is closed prior to direct attack on the lesion.

the procedure performed will offer a chance of cure or merely palliation. It seems to me that the importance of intraperitoneal exploration as a preliminary step to any suprapubic operation for vesical neoplasm has been inadequately stressed. In addition to affording information on the extension of the malignant lesion beyond the bladder, such examination is of distinct help in determining from the size, location in the bladder and local extent of the growth the best surgical procedure for a given lesion. Thus, although one's preoperative opinion may have been that total cystectomy would be necessary to eliminate the growth completely and the patient was prepared preoperatively accordingly, one may discover on preliminary exploration that segmental resection will suffice to accomplish the desired result. The extent of perivesical extension and involvement of the peritoneum over the posterior wall of the bladder can be determined with much greater satisfaction by transperitoneal exploration than by any other method.

After this exploration is concluded the peritoneum is closed, and this line of closure is protected with a large moist pack before any local operation is performed on the bladder. So far as I have been able to determine, the surgical risk is not altered in any way by preliminary intraperitoneal exploration.

METHODS OF SUPRAPUBIC TREATMENT

Many different forms of suprapubic treatment have been devised and employed for the treatment of cancer of the bladder. The three procedures which have been utilized most frequently in my experience have been segmental resection; excision and fulguration, with or without simultaneous implantation of radon,[1] and total cystectomy. Table 2 shows the relative frequency with which these different procedures have been employed during the past six years and the mortality rate associated with each type of operation. During this time the use of segmental resection has remained about the same; however, fulguration with or without the simultaneous implantation of radon has been used less frequently and total cystectomy has been used more frequently in the latter part of the period than in the former.

Segmental Resection.—Segmental resection of the bladder for carcinoma is a highly satisfactory procedure in a selected group of cases. It is best suited for a growth which is well removed from either ureterovesical orifice, which is situated high in the bladder, either in the dome or on one of the walls, and which is within reasonable limits of size. It is employed usually in treating an infiltrative type of growth. A growth situated in the vicinity of a ureteral orifice can be removed by segmental resection and the ureter reimplanted into the bladder; however, my colleagues and I prefer to employ this procedure only in the exceptional case.

Technical procedures involved in performing segmental resection are not difficult, provided the lesion does not extend down to the base of the bladder. One should always excise the lesion completely with what appears to be normal mucosa for a distance of at least 2 cm. on all sides of the growth. At times there may be intramural extension from the growth which is not detectable by the appearance of the surrounding mucosa. The electrosurgical unit may be found helpful in performing segmental resection of the bladder. Needless to say, all local extension and any involved portion of the peritoneum should be removed in one piece with the primary lesion. It has been our practice to close the bladder with two rows of chromic catgut, the inner one of which passes through the mucosa. In almost all cases a straight suprapubic catheter is left in the bladder.

Suprapubic Fulguration With or Without Implantation of Radon.—Suprapubic excision and fulguration seldom is a procedure of choice in treating a vesical neoplasm. This method is reserved for lesions which involve the base of the bladder, including one or both ureteral orifices. In other words, it is employed for a lesion for which total cystectomy usually would be advocated but for some reason is not performed. Such reasons may include poor general condition of the patient, refusal of total cystectomy by the patient or questionable ultimate result which might be obtained, even though the bladder were removed completely.

TABLE 2.—*Malignant Lesions of the Bladder: Incidence and Mortality in Certain Types of Suprapubic Operations, 1940-1945 Inclusive*

Type of Operation	Total Patients	% of Total	Hospital Deaths	
			No.	%
Exploration alone *	21	10.0	0	...
Segmental resection	64	30.3	3	4.7
Fulguration with or without implantation of radon	30	14.2	3	10.0
Total cystectomy and bilateral ureterosigmoidostomy †	60	28.4	6	10.0
Total cystectomy with nephrostomy and so forth	5	2.4	0	...
Other suprapubic operations	31	14.7	0	...
Total	211	100.0	12	5.7

* Represents cases in which the lesion was too far advanced to permit any surgical procedure.

† All cases are included in which total cystectomy was either planned or accomplished. Three cases are included in which death followed bilateral ureterosigmoidostomy performed as an initial stage to cystectomy.

After preliminary abdominal exploration, the peritoneum is closed and the bladder is opened through the dome. The location and extent of the growth then are ascertained from the mucosal side of the bladder. By use of the cutting current and loop electrode, all or as much of the growth as possible now is excised. This is an important step prior to fulguration, as by far the bulk of the neoplasm is removed in this manner. In some cases the entire thickness of the vesical wall may be excised in certain regions. Subsequently the entire base and edges of the crater created by the excision are thoroughly fulgurated. One should never stint the extent of the fulguration, regardless of the area of the bladder involved. Here again one should always fulgurate the vesical wall for a distance of several centimeters surrounding the apparent mucosal boundaries of the growth. If one or both ureteral orifices are in an involved area, one always endeavors to identify the ureter as it is cut across by the electric loop and before it is fulgurated. A ureteral catheter of appropriate size then is passed to the corresponding renal pelvis, allowed to remain in place and brought out externally through the urethra or the suprapubic incision. In certain cases neither the ureteral orifice nor the intramural portion of the ureter will be detected,

1. Although the distinction is not therapeutically important, in some instances radium instead of radon actually was used.

and one or both of these structures will be fulgurated. Through the kindness of nature urine seems to drain from the ureter into the bladder even under these circumstances, although the surgeon never experiences the same satisfaction with his work at the conclusion of the operation. In what percentage of such cases a stricture may develop at the ureterovesical junction in later years, I do not know.

Decision as to the use of radon in association with electroexcision and fulguration is based on the observations in each individual case. If the surgeon believes that the growth has been dealt with satisfactorily from a local point of view and that no tumor remains which has not been removed or fulgurated, radon is not employed. On the other hand if certain questionable areas remain, insertion of an adequate amount (as nearly as can be determined) of radon is desirable.

Total Cystectomy.—It is my opinion that total cystectomy is a procedure which has not yet been fully appreciated and properly evaluated in the treatment of carcinoma of the bladder. In the past it has carried a high initial mortality rate or has been followed by late results which were not wholly satisfactory. As a result this procedure has not been held in high regard. These facts have been due to many factors, most of which can be eliminated today.

In former years patients were not always prepared properly for the operation. The procedure was used as a last resort in treating extensive, high grade or recurrent lesions, usually without preliminary transperitoneal exploration. Without doubt many of these patients were doomed because of extravesical extension of the lesion which existed but was unappreciated at the time of cystectomy. Urethral transplantation and cystectomy constitute a formidable procedure, which requires a certain amount of experience before it can be performed with a reasonable risk, just as with gastric resection, pneumonectomy or other surgical operations of similar magnitude. With experience, however, a mortality rate comparable to that associated with other major surgical procedures should be attained. The introduction of newer forms of treatment to combat infection has been a material aid in lowering the risk of this as well as other operations. As the operative mortality rate is reduced, as patients are properly selected and as it becomes appreciated that adequate renal function can be maintained for a prolonged period of years after bilateral ureterosigmoidostomy, total cystectomy should assume a position of growing importance in the treatment of vesical neoplasm. In my experience total cystectomy is being employed with increasing frequency. This statement is made despite the fact that many have adopted a defeatist attitude toward this operation. It is true that a certain number of patients experience ureteral obstruction, renal infection and serious interference with renal function after ureterosigmoidostomy. Such developments are considered to be due to technical errors at the time of operation in almost every case, and as one's experience with performing ureterosigmoidostomy increases, these undesirable sequelae to the operation should occur less frequently.

Indications: The indications for total cystectomy are not as clearcut as one would like, but this is equally true of most forms of treatment for vesical neoplasm. Today probably few surgeons would agree completely on any dogmatic list of indications. At the present time, provided the general condition of the patient permits, my colleagues and I consider that the following types of malignant lesions in the bladder justify exploration with the view to total cystectomy: (1) an extensive low grade lesion which involves most of the bladder, (2) a low grade lesion which involves numerous and diversified regions in the bladder, (3) repeatedly recurring low grade lesions, (4) a high grade infiltrating lesion which to the best of one's knowledge can be removed completely by total cystectomy but probably not by any less extensive procedure and (5) any vesical neoplasm which involves portions of the bladder, such as the vesical neck and ureterovesical orifices, which cannot be removed completely without seriously affecting vesical function. Ureteral transplantation and total cystectomy are not performed preferably on the patient who has a recurrent high grade lesion: the ultimate prognosis for any procedure is poor; the patient should have had a more radical form of treatment when his lesion was first detected.

Technic: Total cystectomy obviously presupposes diversion of the flow of urine either to the skin or to the bowel. It is my opinion that transplantation of the ureters to the bowel is far superior, from the patient's point of view, to cutaneous transplantation and, furthermore, that the former can be accomplished in a large majority of cases with reasonable risk and justifiable expectations of satisfactory preservation of renal function over a prolonged period. In former years it was considered unsafe to transplant the dilated ureter into the bowel. It is now known from experience that in the adult, ureters dilated to a diameter of approximately 1 cm. can be transplanted into the bowel with relative safety, provided there is not too much thickening of the ureteral wall. In cases of this type it may be advisable to use an indwelling soft rubber catheter of an appropriate size at the time the anastomosis is established.

Whether extraperitoneal or transperitoneal ureterosigmoidostomy is performed may be simply a matter of the individual surgeon's preference. In former years my colleagues and I used the extraperitoneal approach. We now feel that we can perform the operation transperitoneally with no increased risk. The latter procedure is easier technically and affords superior exposure and alinement of the anastomosis. Satisfactory results can be obtained by an exceedingly simple type of operation, and for many reasons it seems desirable to keep the technical aspects of the procedure as simple as possible.

How many stages should be utilized in accomplishing ureteral transplantation and complete removal of the bladder for carcinoma is a currently controversial subject. In many fields of surgery staged procedures are used much less frequently, and rightly so, than in former years. Previously it was my custom to perform bilateral extraperitoneal ureterosigmoidostomy at the original operation and several weeks later to remove the bladder. During the last few years my colleagues, Dr. Counseller and Dr. Ferris, have been performing the whole operation at one stage with favorable results. Through a low midline transperitoneal incision the ureters are transplanted and the bladder is removed. I have had the opportunity to try this in a limited number of cases during recent months and have been

impressed with the desirability of this one stage procedure.

In brief, the following procedure is now employed: The patient is hospitalized for a minimum of four days of preoperative preparation. During this time a nonresidue diet with vitamin supplements is given, and 4 Gm. of succinylsulfathiazole every three hours for six doses, then 2 Gm. four times a day, is administered. The bowel is cleaned with cathartics the first three days. Rectal irrigations are given twice daily until the day before operation. In the evening and morning before operation the rectum is aspirated and paregoric is administered.

Inhalation anesthesia is employed. After exploration through a low midline incision bilateral ureterosigmoidostomy is performed after a simple modified Coffey I technic. A maximum of three or four stitches is used to accomplish the transplantation, including the stitch which leads the ureter into the bowel. Every effort is made to obtain an anastomosis without tension, angulation or compression of the ureter at any point. The ureter extends into the bowel at least 1 cm. The bowel is fixed in the desired position with several interrupted stitches. Catheters are employed only in the exceptional case in which grossly enlarged ureters are encountered. After transplantation of the ureters, the peritoneum is dissected free from the bladder and closed by suture and the bladder is removed. If the patient is male the prostate and seminal vesicles always are removed with the bladder. In addition to ordinary suprapubic drainage, one end of a long Penrose type drain is passed out of the urethra and the other end is brought out of the incision suprapubically. A large rectal tube is inserted and left in place, usually for seven to ten days postoperatively.

Postoperative administration of fluids is started by mouth approximately forty-eight hours after operation, followed by a liquid and then a soft nonresidue diet. A diet of average residue is not given until the rectal tube is removed. Prophylactic chemotherapy is given for a few days after operation. Other postoperative measures are similar to those employed after any operation of similar magnitude.

COMMENT

It is my feeling that in general a too conservative attitude has prevailed regarding the treatment of vesical neoplasm. Small cancers elsewhere in the body uniformly are treated by radical measures. This is true of the breast, stomach, intestine and uterus, and it seems logical to believe that similar measures should be employed in the management of cancer of the bladder. The reported incidence of recurrence after various conservative forms of treatment for the relatively small and low grade lesions, which should offer the best prognosis if properly treated, attests the need for adequate measures at the time the growth first is discovered. This statement is not intended by any means to imply that total cystectomy should be employed in all cases, as this is far from my opinion. It does mean, however, that complete removal or destruction of the tumor should be the primary concern and that the immediate advantages of a conservative method of approach should not weigh too heavily in deciding on the most desirable form of treatment for a given patient.

There still is need for a comprehensive study of end results obtained in the treatment of vesical neoplasm, wherein various forms of treatment are correlated with the many variables which result when cancer develops in the bladder. Thus, results obtained after individual methods of management should be studied in relation with the characteristics of the tumor treated, such as grade, degree of infiltration, size, multiplicity and location in the bladder. Only by more accurate evaluation of results will indications for treatment become more clearcut and better understood. Probably it will be several years before a satisfactory study can be made of ultimate results after total cystectomy performed for vesical neoplasm.

SUMMARY

Many factors must be considered in deciding on the most desirable type of treatment for a patient who has carcinoma of the bladder. These include the size, grade and location of the lesion, the degree of infiltration, whether the lesion is single or multiple, whether the ureterovesical orifice is involved on one or both sides, the status of renal function, the age and general condition of the patient and the risk and prospect of cure afforded by various available procedures. It should be remembered that even the most capable cystoscopist is subject to the inherent limitations of all transurethral procedures in treating a vesical carcinoma through the cystoscope. It is thought that in general the treatment of vesical neoplasm has been too conservative in type. External irradiation is not considered a primary treatment of choice.

The principal suprapubic procedures employed in the eradication of vesical neoplasm are electroexcision and fulguration, with or without the simultaneous implantation of radon, segmental resection (in rare cases local excision) and total cystectomy. Segmental resection seems satisfactory for a limited number of properly situated growths. Total cystectomy is in the process of being reevaluated and it is thought that its field of usefulness is broader than has been appreciated in the past. Bilateral ureterosigmoidostomy, which can be performed in most cases of vesical neoplasm, is considered the desirable form of diversion of the urinary flow in association with total cystectomy.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. JEWETT; MCDONALD, FILIP AND WILLIAMS; MARSHALL AND PRIESTLEY

DR. FRANK HINMAN, San Francisco: It is remarkable that these four papers—all of them excellent—are as much in agreement as they are. The problem of tumors of the bladder is largely one of differential diagnosis and selection of treatment. The problem is changing, however, from what it was a number of years ago. Ten years ago it was estimated that probably 90 per cent of all tumors of the bladder were papillomatous. Of malignant tumors of the bladder 80 per cent are in people over 65 years of age and 90 per cent in those over 50. From the years 1930 to 1940, the number of people over 65 in the United States increased by 35 per cent. The significance of this is that the incidence of cancer of the bladder is increasing. In differential diagnosis one must consider the proper application of four different methods of treatment: (1) fulguration; (2) irradiation; (3) surgical resection of the local growth, and (4) radical cystectomy. The early papillomas and a number of infiltrating papillomas can be cured, but there are types of infiltrating tumors which cannot be cured by diathermy. The differential point to decide in making the examination is what the treatment will be. Will the physician depend on diathermy

or at once adopt some radical procedure? Radium or roentgen radiation may be used. Tumors so located as to be resectable can be successfully treated by this method. There are cases, however, in which neither diathermy nor resection can be used, and for them the treatment is total cystectomy with transplantation of the ureters. The important thing in differential diagnosis is to be able to make this decision early. There are many cases of total cystectomy that are not successful because of the procrastination and delay in subjecting such patients to this radical procedure. If the physican could decide that the only hope for these patients was a total cystectomy and a ureteral transplantation, he probably would perform the operation earlier and save more of these patients than he does. In the fulguration treatment, it is important to have regular periods of reexamination. It has been my custom to have the patient back a month after the first fulguration and then possibly destroy any recurrence. If there is no recurrence they return in two months, then three months, then every three months for a period of two years and then at six month intervals for another two or three years. The patient is usually followed for at least three years after the period of last recurrence. There is no doubt that thorough fulguration and deep diathermy cures many papillomatous tumors. It will not cure the sessile flat infiltrating tumors. These tumors have to be cured by either radium therapy or surgical resection. My experience with irradiation has been like that of the speakers—terribly disappointing. Many of these patients have suffered a year or more with excruciating burns of the bladder. There is not much that can be done to relieve them. Vesical tumors—practically all of them—are radioresistant. The majority of urologists rely on the other three methods—fulguration, wide resection when possible and as a last resort either palliation or radical cystectomy with transplantation of the ureters.

Dr. Oswald S. Lowsley, New York: The scholarly presentation of Dr. Hugh Jewett indicates the results obtained in the clinic, which was always predominantly surgical although other methods were utilized. Dr. Marshall has presented statistics, some of which are from the Memorial Hospital, where emphasis has been placed on radiation but surgical procedures have also been done. Dr. Marshall says that radiation can cure cancer but does so in only a small percentage of cases, and the general results are only a little bit better than those noted in untreated cases as far as life expectancy is concerned. This is a most important observation, coming from the world's greatest center of enthusiasm for radiation. Dr. Jewett has called attention to the four causes of failure in any method of treatment. With those observations I heartily agree, but I feel that sometimes operation, either cystectomy or even transplantation of ureters to the bowel in hopeless cases, is advisable for the relief of pain, because it is the duty of the physicians not only to "heal the sick but to relieve human suffering." The best results in my experience have been obtained by suprapubic thorough resection of vesical tumors, large or small, with a wide cuff of normal bladder wall. One may have to transplant the ureter to another part of the bladder. My first operation of this sort was done in 1918, and this patient is hale and hearty today and so grateful that he presents the research fund with $5,000 annually. This resection should be done regardless of the grade of the tumor if it is accessible and the patient's condition warrants the operation, because I have had several cases of grade 1 tumor in which the patients have come back months later with grade 3 or 4 tumors. Following the removal of any tumor of the bladder it is my custom to utilize the Kirwin treatment, which consists of bathing the operative site with a solution of carbolic acid 50 per cent in glycerin for three minutes, followed by alcohol. This prevents implants most effectively. I heartily agree with Harold McDonald that these patients should be followed, and with regular cystoscopic examination. I believe in fulgurating small papillomatous tumors. I have one patient, an old lady, who comes back to see me once every three months. It is seldom that I do not find a pea-sized tumor to fulgurate. I have fulgurated more than a hundred tumors, but to operate on this woman would be silly because the tumors are small. This is certainly the best thing to do in this particular case. Let me add my voice to those who recommend that all physicians urge their patients to undergo a thorough urologic examination when blood, either microscopic or macroscopic, is discovered in the urine. Painless hematuria should be considered a most serious symptom, to be viewed with alarm until its source is discovered. Only in this way will there ever be an opportunity to cure cancer of the bladder, or of any other organ of the genitourinary tract, by operative intervention.

Dr. Lloyd G. Lewis, Washington, D. C.: Urologists have been extremely conservative in the treatment of cancer by surgical means. Yet one should not rush into a radical procedure such as total cystectomy unless one is sure that the operation is indicated. I recommend endoscopic treatment of grade 1 tumors and approve of total cystectomy for extensive infiltrating tumors without evidence of metastasis. There is, between these two types, a group of tumors, grades 1 and 2, which tend to recur. I have used total cystectomy for multiple recurrent tumors. Dr. Kirwin has used carbolic acid treatment. We have considered adapting radium therapy to meet this problem. The lethal tumor dose must be determined and administered. The dose for cancer of the bladder ranges from 8,000 to 12,000 r. Implantation of radon or radium needles means "hot spots" and inadequate total dosage. Roentgen rays produce extensive damage to skin and bowel. The principle we propose is not new; it is similar to the radium pack. A 25 mg. capsule of radium is placed in the drainage tube of the Foley catheter, and the balloon is inflated to 35 cc. so that the radium lies at the center of the sphere with a radius of 2 cm. At operation, cystostomy is performed and the tumor is resected or fulgurated. Radiation at point source is 100 per cent, at 1 cm. 60 per cent, at 2 cm. approximately 25 per cent and at 3 cm. about 9 per cent. Because 90 per cent of the tumors occur in the prostatic portion of the bladder, irradiation of the tumor-bearing area and the area of recurrence is accomplished. This method is not satisfactory for deeply infiltrating tumors, but it seems ideal for superficial tumors and for prophylactic irradiation to prevent recurrence. We have used this method in 8 cases; the first patient, a boy of 19 with multiple grade 2 tumors filling the bladder, has had no recurrence one year following radiation; 2 female patients with small grade 3 infiltrating tumors have had no recurrence at eight and nine months, respectively. The other cases are too recent for appraisal. Adequate radiation will kill vesical cancer cells; however with adequate dosage there must be radium-induced cystitis, which clears in six or eight months. Radium may contribute to the handling of tumors which are not susceptible to transurethral surgery alone and in which one is doubtful of the necessity for carrying out cystectomy. I believe that a radium balloon catheter with adequate drainage facility can be made so that cystostomy will not be necessary.

Dr. Roger W. Barnes, Los Angeles: I would like to ask Dr. Jewett whether it is possible in his B group of tumors, those which have infiltrated the bladder musculature but have not extended entirely through, to determine the amount of this infiltration by taking one or two biopsy specimens? Isn't it usual that one area of these tumors is infiltrated much more deeply than another area? Tumors of the bladder which had transurethral resection and fulguration alone were compared with those which had a combination of resection and radon implantation. In grade 1 malignancy and papilloma radon seeds were not used. In grade 2 and grade 3 malignancy the length of life of patients who had the combined resection and implantation of radon seeds was a little longer for each grade than that of the group which had resection and fulguration only. In other groups there was an extension of life in the cases in which both the transurethral resection and fulguration and radon were used over those in which there was transurethral resection and fulguration only.

Dr. Gilbert J. Thomas, Beverly Hills, Calif.: The members of the American Urological Association have expended a large sum of money for the maintenance of a registry so that all tumors of the bladder seen by urologists may be graded and studied. This study has been a group project for a great

many years. I was never satisfied that the conclusions obtained from this study of vesical tumors was accurate and that the treatment applied was adequate. Many of the bits of tumors that have been sent in to the laboratory at the Army Medical Museum have not been accurate specimens removed from that portion of the tumor in which urologists are most interested. Dr. Jewett has suggested that bits of muscle fibers should be part of every biopsy specimen obtained, as these reveal that the specimen came from the wall of the bladder and not from the top of the tumor. The methods suggested by the essayists make possible an accurate microscopic diagnosis of the presence and extent of the condition. Dr. Jewett has alluded to this method of diagnosis of the character of the tumor. Dr. Priestley explores the abdomen when a tumor of the bladder is present. He searches for and determines the extent of local spread or metastasis. Urologists were shunted onto a sidetrack during their treatment of tumors of the urinary bladder with the advent of the transurethral resection. Many undiagnosed tumors of the bladder have been resected and fulgurated transurethrally when segmental resection should have been practiced or a complete cystectomy performed. More patients should be subjected to early cystectomy, which would follow complete diagnosis and preoperative care which includes the correction of nutritional deficiency, replacement of blood and fluid losses and disinfection of the urinary tract and of the lower bowel, together with the selection of a proper anesthetic or a combination of anesthetics. This disease should be attacked as boldly as it is by the rectal or stomach surgeons. If the suggestions that have been made today are followed, one can make an accurate diagnosis of the condition present and can plan a method of attack aimed at the cure of the patient. When a suprapubic exploration is made and reveals the presence of cancer of the bladder, without metastasis, the surgeon should be prepared to do (at this time) a cystectomy or resection or any other surgical treatment the condition requires. One has not cured a papillomatous tumor of the bladder which recurs, so I am wondering why there should be a method of grading the degree of malignancy of these tumors. Since recurrences occur frequently, why not employ more radical methods of treatment that are aimed at permanent cure?

DR. HUGH J. JEWETT, Baltimore: Dr. Barnes has asked how one detects by biopsy the depth of infiltration of a tumor which presumably has invaded the muscularis. I didn't mean to imply that one could. The biopsy is used, first, to establish the diagnosis in questionable cases and second, to establish the presence or absence of any infiltration. One knows from a properly taken biopsy whether infiltration has occurred. If the biopsy includes muscle fibers, one knows at once whether the tumor has reached the muscle. The most valuable method of determining preoperatively the depth of infiltration is the bimanual examination. I don't wish to suggest at this time the most appropriate treatment for tumors in each of the three stages of infiltration. What I do mean to say, however, is that there is a considerable difference in the curability of tumors of the urinary bladder, and this depends to a great extent on how deeply they are situated in the wall of the bladder. By learning to distinguish between superficially and deeply infiltrating tumors the urologist will know at the end of a period of time which treatment has been best for those particular tumors.

DR. HAROLD P. MCDONALD, Atlanta, Ga.: As has been pointed out so ably, it is admittedly difficult at times to determine whether or not open transurethral surgical methods should be applied in the treatment of tumors of the bladder. When this has been determined it is important, as Dr. Thomas mentioned, to be sure that the procedure is thoroughly carried out. In removing the tumor by transurethral means it is important to remove the tumor down to its base and at least half through the muscularis of the bladder. It is often found that the base of the tumor is malignant whereas the outer portion is not. Dr. Lewis's suggestion regarding the use of a bag in the administration of radium might in my opinion be helpful in lessening recurrences.

THE CUTANEOUS LESIONS IN ACUTE MENINGOCOCCEMIA

A Clinical and Pathologic Study

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The presence of a cutaneous rash has always been recognized as one of the earliest and most reliable clinical signs in meningococcemia, a fact that has led clinicians in the past to employ such titles as malignant purpuric fever, petechial fever, black fever and spotted fever for these infections. The purpose of this paper is to discuss the cutaneous manifestations of meningococcic infection and to comment on their pathogenesis in relation to the histologic observations in specimens of skin of persons who have had meningococcemia. This study is based on 25 cases taken from the autopsy files of the Peter Bent Brigham, Boston Children's and Boston City hospitals, in which the patients exhibited lesions of the skin during the course of the disease and died as the result of acute meningococcic infection.

HISTORY

The first epidemic of meningococcemia reported in North America occurred in Medfield, Mass.[1] in 1806, eighty-one years prior to Weichselbaum's discovery of the causative organism, Neisseria intracellularis. In 1894 Voeleker[2] described a case of acute fulminating meningococcemia in a patient who presented purpuric cutaneous lesions and at autopsy was found to have bilateral adrenal hemorrhages—the so-called Waterhouse-Friderichsen syndrome (epidemic cerebrospinal meningitis). In 1901 E. Graham Little[3] collected a group of similar cases and identified them as a distinct clinical entity. His report preceded Waterhouse's[4] by ten years and Friderichsen's[5] by seventeen. In 1898 Gwyn[6] proved the existence of meningococcemia by recovering the meningococcus through culture of the blood of a patient. In 1906 Andrews[7] supported Gwyn's observations by demonstrating this organism in smears of the peripheral blood of a patient with acute meningococcemia. In 1916 Netter and Salanier[8] noted the presence of meningococci in a smear obtained by abrading the purpuric lesions of the skin. In the same year Benda[9] and also Pick[10] reported finding meningococci in specimens of skin removed for histologic study

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from patients who had died of meningococcemia. Also in 1916, von Drigalski [11] found meningococci in smears of fluid obtained from herpetic vesicles in patients with this disease. One year later Netter, Salanier and Blanchier [12] successfully cultured the meningococcus from material obtained by incising purpuric lesions. In 1931 McLean and Caffey [13] cultured meningococci from bullae that had been raised over purpuric areas by gentle friction.

CLINICAL DATA

Herrick [14] defined three chronologic stages of invasion by meningococci. He believed that after primary localization in the nasopharynx the meningococcus entered the blood stream and gave rise to meningococcemia. This stage of bacteremia, similar to the spirochetemia of early syphilis, is common to all types of meningeal infections. Concomitantly with the stage of bacteremia, or at various intervals thereafter, the meningococci metastasized to the skin, eyes, joints, heart, adrenals or meninges and produced various clinical syndromes.

The number of cases of meningococcic infection exhibiting cutaneous lesions cannot be determined with accuracy, since many of the lesions are asymptomatic, inconspicuous and fleeting in character and are easily overlooked. In Meyer's [15] series of sporadic cases with acute illness, 61 per cent exhibited a cutaneous eruption. In similar groups of patients, Smithburn [16] and his co-workers noted lesions of the skin in 68 per cent and Strong [17] in 82 per cent. Daniels, Solomon, and Jaquette [18] described cutaneous lesions in all the cases that came under their observation during an epidemic. The greater incidence of rashes noted during epidemics is probably due to an increased consciousness of the problems at that time.

The onset and course of the disease in the present series of cases varied widely. The most frequent prodromal symptoms were pharyngitis, laryngitis and conjunctivitis, followed by fever, chills, headache and arthralgia. However, the disease may be ushered in by convulsions or the patient may manifest symptoms of shock.

Irrespective of the type of onset, the most constant sign was the appearance of lesions of the skin. The cutaneous patterns were similar to those described by other authors and included erythematous macules, papules, nodules, vesicles and petechial and purpuric lesions. In the majority of cases a combination of lesions was usually found, since most patients exhibited more than one type of lesion during the course of the disease. These lesions varied in size, shape, number and location. The earliest lesions were ill defined erythematous macules ranging in size from a few millimeters to 10 mm. or more, and some simulated the rose spots of typhoid fever. These were situated over the lower extremities and trunk. Papules, some of which had a central punctum or linear hemorrhage, did not fade on pressure and resembled flea bites, were also observed. In some cases erythema nodosum-like lesions appeared on the lower extremities and were indistinguishable from the type encountered in other diseases.

Hemorrhagic lesions, both petechial and purpuric, were seen in a majority of these cases. The petechiae measured 8 to 35 mm. in diameter, were irregular in outline, were tender to touch and did not fade on pressure. Many coalesced to form larger ovoid or stellate purpuric lesions, which were light purple to black and ranged in size from 5 or 6 cm. to extravasations covering an entire segment of the body. Infrequently the purpuric lesions were surmounted by vesicles and pustules. In none of the present cases was purpura found alone, but in every case in which it occurred it was associated with petechiae.

The course and extent of the eruption were as variable as the lesions themselves. Usually the cutaneous eruption was most prominent on the extremities, but regions of the body subjected to pressure, such as the shoulder, elbows and pelvis, and the region over the deltoid areas subjected to friction were also frequent sites. Petechiae favor the joints, particularly the small joints of the hands, wrists, and ankles, and purpura the extremities and back. The face, palms and soles were only occasionally involved. The lesions usually became generalized, although in a few cases the initial lesions remained localized. Often it was possible to trace the evolution of the eruption, beginning with erythematous maculopapules and progressing to the more commonly observed petechial and purpuric lesions. In 8 of 25 cases a maculopapular rash preceded the petechial lesions.

The lesions usually appeared within twelve to thirty-six hours after the onset of the disease, but in a few cases they were fully developed within a few hours. The course of the eruption was influenced by the type of lesion, the type of therapy and the severity of the infection. The maculopapular lesions may fade in a few days, irrespective of therapy, and usually do so twelve to twenty-four hours after the use of penicillin or sulfonamide compounds. These drugs do not appear to influence the course of the hemorrhagic element of this disease. Petechial and purpuric lesions, which involute slowly over periods of days to weeks in patients who survive, leave a residual light brown pigmentation.

Attention should be called to necrosis and sloughing of purpuric lesions and gangrene of the extremities, which occurred in 2 patients who recovered from acute meningococcemia. In the first of these, irregular bluish black eschars formed over the site of a severe purpuric lesion on the lower extremity. In the second, necrosis of the skin of the toes and later of the entire toes occurred, so that amputation was necessary. Healing of these lesions was extremely slow, the patients requiring months of hospitalization.

The meningococci were typed in 13 of the 25 cases studied. N. intracellularis of type I strain was found in 12 cases and type II in 1 case. Osborne, Arnone and Lythcott [19] stated that pathogenic strains are types I, II and IIa. Korns [20] was of the belief that

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19. Osborne, J.; Arnone, W. H., and Lythcott, G. I.: Meningitis and Meningococcemia in Childhood: A Statistical Study of Seventy-Two Cases, New England J. Med. **231**: 868, 1944.
20. Korns, R. F.: Meningococcus Infection, New York State J. Med. **43**: 2069, 1943.

most patients with clinical cases of the disease harbor type I organisms and that those of carriers belong to type II, especially when the carriers are not intimately associated with patients with active infections. Branham [21] stated that type I organisms are responsible for most epidemic cases and are identified most frequently in the acute fulminating form of the disease. Type I is the organism most commonly present in the beginning of an epidemic; type II is most prevalent during an epidemic.

Fig. 1.—The vessels are engorged and packed with red blood cells. In the center of the section diapedesis has resulted in perivascular hemorrhage (low magnification).

It is of interest to note that in 4 cases in which the platelets were observed, they were diminished in 2 cases in which purpuric lesions were pronounced, whereas they were normal in 2 cases in which these lesions were absent. In 1 of the 2 cases in which the platelets were reduced, the clotting times of capillary and venous blood were prolonged, and the clot retention time was increased.

PATHOLOGY OF THE CUTANEOUS LESIONS

The fundamental pathologic lesion in the skin in meningococcemia is diffuse vascular damage. The most constant observation in all our specimens removed for histologic study was diffuse dilatation and engorgement of blood vessels throughout the depth of the cutaneous lesions (fig. 1). This was true irrespective of the type of clinical lesion or of the age of the lesion. This widespread vascular change was not restricted to the skin but was found throughout the serous surfaces and other organs of the body. Study of the smaller blood vessels and capillaries showed endothelial changes. There was decided swelling of endothelial cells, often to such a degree that the continuity of the lining endothelium was broken. These frayed and desquamating lining cells, either singly or in groups, were found partially dilated and protruding into the lumens of the vessels and were frequently seen to be lying free in the lumens. Meningococci could be identified in endothelial cells (figs. 2 and 3) even with routine stains, such as eosin-methylene blue and hematoxylin eosin. These organisms could be demonstrated particularly well with bacterial stains, such as the MacCallum-Goodpasture modification of the Wright stain.

Corroborative evidence of the endothelial damage and subsequent necrosis of the vessel wall was the early appearance of diapedesis of red blood cells, with the formation of small perivascular hemorrhage and larger lakes of red cells. Coincident with this process, or rapidly following it, was the appearance of polymorphonuclear leukocytes lying free in the lumen and infiltrating the areas of endothelial damage. Meningococci could be demonstrated in the cytoplasm of many of these leukocytes. In many vessels, particularly those in which endothelial damage was more pronounced, leukocytes were found throughout the vessels and in the perivascular spaces. In the older lesions many of these were pyknotic or disintegrated. It would appear that these lesions were progressive, in that the bacteria released by the disintegrating phagocytic leukocytes in time attracted more leukocytes. Edema in these sites was well defined, and meningococci were found free in the tissue spaces. In the older lesions a few lymphocytes and débris-containing macrophages were present.

Fig. 2.—Meningococci are visible in the cytoplasm of endothelial cells (oil immersion).

Platelet thrombi were seen in many vessels. These were most prominent in vessels deep in the cutis or in the subcutis, although the superficial capillaries directly beneath the epidermis were involved in a lesser

21. Branham, S. E.: Meningococcus Meningitis, J. Pediat. 18:217, 1941.

degree. The earliest thrombi were found in vessels in which the endothelium had been damaged and early leukocytic infiltration had taken place. Here fibrin strands, in whose meshes were contained platelets and leukocytes, had attached themselves to the damaged vessel wall and partially occluded the vessel (figs. 4 and 5).

Elsewhere thrombi completely occluded vessels, and all gradations were often seen in the same sections, suggesting that not all the lesions were equal in age. Organization was demonstrated in a few such thrombi. It should be emphasized that these thrombi were made up for the most part of platelets, red blood cells and fibrin and that they frequently contained meningococci.

Striking changes were present in the sweat glands, which were pale-staining and edematous. The individual cells of the acini were swollen and pale, and their cytoplasm was vacuolated. A few clumped nuclei were often all that remained of completely destroyed sweat glands. These changes were sometimes accompanied by an exudate, which consisted principally of polymorphonuclear leukocytes and contained meningococci. The blood vessels accompanying these glands showed the changes already described, and almost invariably a thrombosed blood vessel could be demonstrated in close proximity to and directly beneath a group of these damaged sweat glands (fig. 6).

Fig. 3.—Meningococci are visible in the cytoplasm of endothelial cells.

The erector pili muscles and cutaneous nerves accompanying the arteries and veins were vacuolated, and their interstices were invaded by polymorphonuclear leukocytes. In the subcutaneous fat, focal areas of fibrinous necrosis with numerous phagocytic cells were present.

When vesicles occurred they were subepidermal and unilocular and contained serous and fibrin strands, with little or no inflammatory reaction.

The epidermis was normal in contour and in the arrangement and number of cell layers. Occasionally extensive edema was present in the cutis, and in these sections the collagen fibrils were pale-staining and the rete pegs were obliterated.

Fig. 4.—Thrombus is attached to the endothelial wall of a superficial capillary (high magnification).

COMMENT

From the preceding observations it is evident that the lesions of the skin can all be explained on the basis of vascular damage resulting from the presence of meningococci. The sequence of events in the pathogenesis of the lesions is the localization of the meningococci in the endothelium followed by endothelial damage and inflammation of the vessel walls, with resultant necrosis and thrombosis. These changes, by permitting the extravasation of red cells, account for the hemorrhagic cutaneous lesions.

Thrombus formation in the cutaneous vessels of patients who have a rash in association with acute meningococcemia has not been sufficiently emphasized. In all cases studied in which the skin manifestations were severe, thrombi were a striking and invariable observation. They were composed largely of platelets that were attracted to the damaged endothelial lining. It appears that in the formation of these thrombi the platelets are drained from the circulating blood more rapidly than they are replaced, so that a thrombocytopenia results. This in turn accentuates the hemorrhagic tendency and aids in the formation of the purpuric lesions. In 2 cases in which purpura was a striking feature, the blood platelets were greatly reduced. Thrombocytopenia is known to occur in many of the severe febrile illnesses, such as septicemia, typhoid fever, typhus fever, scarlet fever and miliary tuberculosis, and it is not unlikely that the fever is also a factor in the reduction of the platelets in this

group of cases. In cases not included in this series, thrombocytopenia has been observed both with and without cutaneous manifestations but was always severer in the cases in which such lesions were present. Support for this is given by the fact that in 2 of the foregoing cases in which purpuric lesions did not occur the platelets were stated to be normal. Pratt-Thomas [22] reported moderate reduction in the platelets in 2 cases, and Cosgriff [23] also thought that the purpuric lesions were associated with a thrombocytopenia. However, Pratt-Thomas [22] and Weisberg [24] have reported cases with purpuric lesions in which the platelets were said to be normal in number.

The changes in the sweat glands can be explained on the basis of ischemic necrosis due to interference with the blood supply, since a thrombosed vessel was seen in proximity to the glands in the majority of our sections.

The late complication of gangrene of the skin and extremities is probably also the result of vascular thrombi. In each of the 2 cases which we observed, necrosis of the skin and extremities appeared to progress after the stage of bacteremia had been controlled by sulfadiazine and penicillin therapy. The distribution pattern and progression of these lesions can best be explained on the basis of continued propagation of the thrombi. Physiologic disturbances such as dehydration,

Fig. 5.—Thrombus in a larger vessel composed of platelets and fibrin, has entirely occluded the lumen of the vessel (high magnification).

loss of vascular fone and blood vessel stasis brought about by the infection would promote the continued propagation of the thrombi already present. These cutaneous complications will undoubtedly become more frequent as more patients survive following the early administration of chemotherapeutic agents, and recognition of the underlying pathologic process will be of aid in planning local therapy.

Fig. 6.—Vacuolization of the cytoplasm with pyknosis and clumping of the nuclei has distorted the sweat gland acini. Note thrombosed vessels beneath the group of sweat glands (high magnification).

In the present series vascular lesions were not restricted to the skin. Petechiae and hemorrhagic manifestations were found over the serous surfaces and in the mediastinum, epicardium, endocardium, lungs, liver, kidneys, adrenals, intestines and spleen. The vascular lesions were similar to those in the skin. In other words, the cutaneous lesions are but one manifestation of a generalized disease process.

It has been repeatedly emphasized in the literature that it is possible to demonstrate meningococci in smears of purpuric lesions that have been abraded. This was true in 4 cases in the present series in which this was attempted. Bernhard and Jordan,[25] using this method, found meningococci in 27 of 40 cases, while cultures from these lesions that were read after eighteen hours of incubation were reported to be positive in 35 instances.

In all cases in which sections of skin were available for study in this series it was possible to identify meningococci. In view of the ease with which these organisms were identified and the characteristic histologic picture of the cutaneous lesions, it is surprising that biopsy as a diagnostic adjunct has not gained more widespread recognition. Only two biopsy studies have been reported.[26]

22. Pratt-Thomas, H. R.; Kelley, W. H., and Gazes, P. C.: Fulminating Meningococcemia, South. M. J. 38: 229, 1945.
23. Cosgriff, C. W.: Waterhouse-Frederichsen Syndrome: Observations on Associated Adrenal Insufficiency and Report of Four Cases, Ann. Int. Med. 21: 187, 1944.
24. Weisberg, A.: Meningococcemia with Four Case Reports, Mil. Surgeon 97: 478, 1945.
25. Bernhard, W. G., and Jordan, A. C.: Purpuric Lesions in Meningococcic Infections, J. Lab. & Clin. Med. 29: 273, 1944.
26. Renault, J., and Cain, K.: Preuves histologiques et bactériologiques de l'origine septicémique du purpura de la méningite cérébro-spinale, Ann. de méd. 7: 114, 1920. Harrison, F. F., and Abernathy, T. J.: Chronic Meningococcemia: Report of Two Cases, Both Associated with Nephritis, Clin. Misc., Mary I. Bassett Hosp. 1: 3, 1934.

SUMMARY

1. The cutaneous lesions of meningococcemia are the results of vascular damage, which consists of endothelial damage, inflammation of the vessel wall, necrosis and thrombosis. The role of the thrombic vascular lesions is discussed in its relation to clinical cutaneous complications.

2. The histologic picture of the cutaneous lesions in acute meningococcemia and the presence of meningococci are characteristic and specific observations.

ABSTRACT OF DISCUSSION

DR. MAURICE J. COSTELLO, New York: I believe that the cutaneous manifestations are the most striking and important features of meningococcemia. While the eruption usually appears during the first week of the disease, it may appear at any time, may not manifest itself at all or may appear only with each rise of temperature, to fade within twelve to twenty-four hours when the temperature returns to normal. The lesions are polymorphous, beginning as maculopapules, and at times may be of only one type. About a dozen different types of lesions occur. I would like to emphasize several: (1) the erythema nodosum-like lesions such as those occurring in rheumatic fever and in certain eruptions due to drugs; (2) the petechial puncta interspersed with large hemorrhagic blotches, occasionally associated with subconjunctival and mucosal hemorrhages (with this manifestion there may be bilateral adrenal hemorrhage, dyspnea, collapse and death within twenty-four hours); (3) the lesions which resemble "flea bites" containing a central hemorrhagic punctum surrounded by a faint erythematous zone. They are produced by small septic vascular thrombi. These lesions resemble those seen in Rocky Mountain spotted fever, and because of the somewhat similar constitutional symptoms of fever, headache and general irritability this latter disease must be considered in the differential diagnosis of meningococcemia. (4) Dr. Appelbaum, our meningitis expert at Willard Parker Hospital in New York, has called attention to the most distinctive lesion, an irregularly round hemorrhage with a gunmetal-colored center composed of pus cells (*Am. J. M. Sc.* **193**:96 [Jan.] 1937). (5) Another lesion is necrotic, depressed beneath the surface of the skin and bears a superficial resemblance to the papulonecrotic tuberculid in the stage of necrosis. Direct smears from purpuric lesions in meningococcemia offer a quick, easy, accurate method of bacteriologic diagnosis. The variety and frequency of the cutaneous lesions in meningococcemia are ample proof of the ectodermal tropism of the meningococcus.

DR. HIRAM NEWTON, San Diego, Calif.: In the winter of 1942 at San Diego Naval Hospital there was an epidemic of meningitis in which the cutaneous lesions described by Dr. Hill occurred in a high percentage of cases. A thing that struck me as surprising and caught me off guard was the fact that such lesions can occur and meningococcic septicemia can occur without any meningeal symptoms. I had in my ward 2 such cases which were identical in appearance. There would occur a chill, a high fever and then petechial lesions, which would fade in about three days, to occur again about the time the man was ready to be sent to duty. It fell to Dr. Sam Shelburn, of Dallas, Texas, to suggest a possibility of the infection being a meningococcic septicemia without a concurrent meningitis. Sulfonamide drugs cleared the lesions completely.

DR. H. J. TEMPLETON, Oakland, Calif.: Dr. Hill's paper recalls to my mind a fine, healthy high school boy who went to a dance one evening, apparently well. The next morning he was slightly ill, and some cutaneous lesions appeared on the body, apparently petechiae from the description of the attending physician. When I saw him in the afternoon, he had massive hemorrhage into practically all of his skin, along with epistaxis, hematemesis, hematuria and melena. In twenty-four hours from the time of onset he was dead from meningitis, and the meningococcus was isolated from the spinal fluid. At that time penicillin or sulfonamide therapy were not available. That shows the ultimate in the degree to which these cutaneous lesions can progress. Since then I have seen, I think, 2 cases of this Waterhouse-Friderichsen syndrome in the Alameda county institutions.

DR. WILLIAM R. HILL JR., Boston: Our paper discusses the acute form of meningococcemia, of which Herrick has said, "No disease so swiftly slays." The case to which Dr. Newton has referred represents the chronic form of meningococcemia which, according to the literature, was observed in epidemic form in the armed services. Such cases are seldom seen in civilian life.

OBSTETRIC ACTIVITIES IN ILLINOIS HOSPITALS DURING 1945

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In Illinois licensure by the State Department of Public Health is required by statute of all hospitals giving maternity service. To qualify for a maternity license the hospital must comply with a number of regulations established by the Division of Maternal and Child Hygiene in conjunction with medical and hospital advisory groups. Among the requirements for licensure are those dealing with segregation of the obstetric unit, adequate physical arrangement, trained personnel, essential equipment, approved technics and acceptable records. Included in the item of records is the requirement of submission to the Division of Maternal and Child Hygiene of a monthly report which shows the number of mothers and infants cared for, the type of delivery, the operative procedures employed, the incidence and types of complications encountered, the frequency of abortions and ectopic gestations and the number and causes of stillbirths and neonatal and maternal deaths. These reports are given careful study, and annually the data are tabulated for each hospital, for each county and for each group of hospitals with a comparable number of births. Shortly after the end of each calendar year, the department sends each hospital a copy of its individual tabulation together with that of its birth group and the entire state average. Many hospitals have come to use these data as the basis of staff discussion and medical audit. The combined data offer a comprehensive view of the obstetric activities in all the hospitals of the state and present informative and instructive material to those interested in the obstetric specialty.[1]

During 1945, 232 hospitals in Illinois reported 126,309 births. Of these, 62 Chicago hospitals had 57,361 and 170 hospitals in the rest of the state 68,948 births. In view of the fact that Chicago listed 26.7 per cent of all hospitals and 45.4 per cent of the total births, and also because of its rank as an important medical center, tabulations are presented for Chicago, for the state outside of Chicago (designated as "downstate"), and for the total state of Illinois.

Table 1 shows the grouping of the hospitals according to the number of births.

Table 2 shows the number of patients receiving obstetric care and the number of spontaneous and operative deliveries. Included in this table are operative procedures other than those for purpose of the

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From the Illinois Department of Public Health, Roland R. Cross, M.D., Director; Division of Maternal and Child Hygiene, Henrietta Herbolsheimer, M.D., Chief.

1. Newberger, C.: Illinois M. J. **87**:136, 1945; Am. J. Obst. & Gynec. **51**:372, 1946.

delivery of the infant, which may have been employed antenatally, intranatally or postnatally.

Although the average incidence for operative deliveries in all Illinois hospitals is 28.5 per cent, in the individual hospitals the ranges are from 3.3 per cent among 213 births to 85.0 per cent among 1,031 births.

The various types of operative deliveries are shown in table 3. As noted in the summaries of previous years, the hospitals in Chicago have a higher operative incidence than the downstate hospitals and a lower percentage of mid and high forceps and of breech extraction and show a decided preference for the low cervical over the classical cesarean section.

The wide range of percentage in identical procedures in individual hospitals is striking. The range in forceps deliveries is from 1.7 per cent in 651 deliveries to 77.2 per cent in 1,021. The cesarean section rate of 3.6 per cent for the state varies in the hospitals from

TABLE 1.—*Illinois Hospitals Grouped According to Number of Births*

Hospitals	Chicago		Downstate		Total State	
	No. of Hospitals	No. of Births	No. of Hospitals	No. of Births	No. of Hospitals	No. of Births
With less than 50 births	1	15	19	570	20	585
With 50 to 149 births	3	306	28	2,837	31	3,103
With 150 to 349 births	9	2,108	52	12,280	61	14,487
With 350 to 499 births	6	2,532	18	7,339	24	9,871
With 500 to 999 births	22	17,149	41	28,084	63	45,233
With 1,000 or more births	21	35,201	12	17,829	33	53,030
	62	57,361	170	68,948	232	126,309

TABLE 2.—*Number of Mothers Cared For, and of Operative Obstetric Procedures in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Mothers cared for	56,801	100.0	68,215	100.0	125,016	100.0
Spontaneous deliveries	39,178	69.0	50,232	73.6	89,410	71.5
Operative deliveries	17,623	31.0	17,983	26.4	35,606	28.5
Operative procedures for purposes other than delivery of infant	2,227	4.0	1,954	2.9	4,181	3.3
Total operations	19,850	35.0	19,937	29.3	39,787	31.8

0.0 per cent in 330 deliveries to 11.3 per cent in 986. For the most part, the high rate for cesarean sections is particularly noted in the smaller hospitals. In one such institution, where only 34 mothers were cared for, there were 26 spontaneous and 8 operative deliveries, all of which were sections, giving this hospital a rate for the abdominal delivery of 23.5 per cent, the highest in the state. Other small hospitals and their section rates are: 4 in 23 deliveries—17.4 per cent; 3 in 28—10.7 per cent; 11 in 117—9.4 per cent; 18 in 176—10.2 per cent; 17 in 187—9.1 per cent, and 36 in 238—15.1 per cent.

Procedures of an operative character for purposes other than the delivery of the infant are shown in table 4. Notable here is the fact that there is more frequent resort to blood transfusion in the Chicago hospitals than in the downstate area.

The significant triad of obstetric hazards, infection, toxemia and hemorrhage, is recorded in 9.8 per cent of all patients. The standard of morbidity is that of the American Committee on Maternal Welfare: a temperature of 100.4 F. (38 C.) or more occurring on any two of the first ten days post partum, exclusive of the first twenty-four hours. Toxemia is considered under three subheads: nonconvulsive patients with edema, hypertension and albuminuria; patients with convulsions, and patients with such other conditions as hyperemesis, or with only a single manifestation of toxic

TABLE 3.—*Operative Procedures for Delivery of the Infant in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries
Operative deliveries	17,623	31.0	17,983	26.4	35,606	28.5
Forceps (total)	14,474	25.5	13,860	20.3	28,334	22.7
Low	13,536	23.8	12,093	17.7	25,629	20.5
Mid	852	1.5	1,425	2.1	2,281	1.8
High	86	0.2	338	0.5	424	0.3
Cesarean section (total)	2,177	3.8	2,362	3.5	4,539	3.6
Low cervical	1,391	2.4	726	1.1	2,117	1.7
Classical	681	1.2	1,598	2.3	2,279	1.8
Porro and other	105	0.2	38	0.1	143	0.1
Breech extraction	663	1.2	1,480	2.2	2,173	1.7
Version and extraction	247	0.4	255	0.4	502	0.4
Destructive	62	0.1	14	...	56	...

import. The loss of 500 cc. or more of blood is the criterion for determining hemorrhage. In addition to these three inherent maternal factors, there are the dangers of diseases of the cardiovascular, gastrointestinal, glandular and nervous systems. Table 5 gives the reported incidence of all complications.

It is noted that the reported state averages for infection, toxemia and hemorrhage are 4.8 per cent, 2.8 per cent and 2.2 per cent respectively. In scrutinizing the individual hospital reports, however, one must conclude that there is evident lack of accuracy in reporting these complications. A hospital report for one month which showed 212 deliveries with an operative incidence of 35.0 per cent and a maternal death from sepsis reported "no" morbidity. A stillbirth or neonatal death may be attributed to maternal eclampsia or placenta previa, and yet no toxemia or hemorrhage is reported. To obtain a more dependable figure on the relative frequency of complications, an analysis was made of the experience of a representative group of

TABLE 4.—*Operative Procedures in Illinois Hospitals for Purposes Other than the Delivery of the Infant*

	Chicago		Downstate		Total State	
	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries	Number	Percentage of All Deliveries
Total procedures	2,227	4.0	1,954	2.9	4,181	3.3
Mechanical induction	209	0.4	117	0.2	317	0.3
Manual removal of placenta	455	0.8	343	0.5	798	0.6
Uterine packing	282	0.5	623	0.9	885	0.7
Transfusion	1,310	2.3	871	1.3	2,181	1.7

hospitals whose reports reflected painstaking care and reliability. In this group with well over 8,000 deliveries, the percentages were: 8.4 for infection, 6.2 for toxemia and 4.6 for hemorrhage.

In taking stock of the casualties associated with human reproduction due recognition is given to the occurrence of abortions and extrauterine pregnancies. The frequency of these untoward accidents as reported by the hospitals is shown in table 6.

Here, also, as in the matter of reporting complications, there is an unfortunate lapse in dependable information, as evidenced by a record of 4,478 obstetric patients in one hospital with the admission of only 8 ectopic gestations and none of abortion, and another of 1,928 mothers with 7 abortions and no ectopic gestations. Again, reference was made to the group of representative hospitals with more accurate reporting, which revealed that abortion had a ratio to births of 1 to 6, and ectopic pregnancy had a ratio of 1 to 71.

TABLE 5.—*Incidence and Types of Complications in Illinois Hospitals, 1945*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Total complications	5,672	10.0	6,917	10.1	12,589	10.1
Infection (total)	2,410	4.2	3,647	5.3	6,057	4.8
Genital	1,548	2.7	1,666	2.4	3,214	2.6
Extragenital	416	0.7	1,006	1.5	1,422	1.1
Genital and extragenital	116	0.2	248	0.4	364	0.3
Undetermined	330	0.6	727	1.1	1,057	0.8
Toxemia (total)	1,866	3.3	1,615	2.4	3,481	2.8
Preeclampsia	1,348	2.4	900	1.3	2,248	1.8
Eclampsia	108	0.2	182	0.3	290	0.2
Other toxemias	410	0.7	533	0.8	943	0.8
Hemorrhage (total)	1,292	2.3	1,484	2.2	2,776	2.2
Before delivery	356	0.6	287	0.4	643	0.5
After delivery	705	1.3	1,145	1.7	1,919	1.5
Before and after delivery	231	0.4	52	0.1	283	0.2
Nonobstetric conditions	104	0.2	171	0.3	275	0.2

In considering the data relative to the infants, information is asked not only of the total number of births, but also the number liveborn, the prematurely born, those who were injured at birth, the stillbirths and the neonatal deaths. The form for reporting this information is now under revision, and it is planned to include questions dealing with congenital malformations, syphilis and diseases of the eye, the skin and the gastrointestinal tract. The basis for determining prematurity

TABLE 6.—*Frequency of Abortion and Ectopic Gestation in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Ratio to Births	Number	Ratio to Births	Number	Ratio to Births
Abortions	1,009	1:57	3,080	1:22	4,088	1:31
Ectopic gestations	90	1:637	231	1:298	321	1:390

TABLE 7.—*Number of Births, Liveborn, Premature and Infants Injured at Birth, in Illinois Hospitals*

	Chicago		Downstate		Total State	
	Number	Percentage	Number	Percentage	Number	Percentage
Total infants born	57,361	100.0	68,948	100.0	126,309	100.0
Liveborn babies	56,177	97.9	67,648	98.1	123,825	98.0
Prematurely born	2,478	4.3	3,613	5.2	6,091	4.8
Injured at birth	192	0.3	163	0.2	355	0.3

is a birth weight under 5½ pounds (2,500 Gm.). Table 7 gives the total number of infants born, the live births, the premature and infants injured at birth.

It is noted that 98.0 per cent of all infants were liveborn and that 0.3 per cent were injured during birth. The 4.8 per cent for premature births corresponds with figures obtained in previous surveys.

Of prime importance in this yearly analysis is the study of maternal and infant losses. Table 8 shows that the maternal mortality rate was 1.79 per thousand live births, the stillbirth rate was 20.06 per thousand live births and the neonatal death rate was 21.30 per thousand live births.

Worthy of mention is the fact that there were no maternal deaths in 24 Chicago hospitals caring for 21,033 mothers and in 94 downstate hospitals with 26,549 mothers, making a total of 118 hospitals in the state which gave obstetric care to 47,582 mothers. In tragic contrast is the record of one downstate hospital where out of 464 mothers who gave birth to 450 living infants, 8 mothers died, giving this institution a rate of 17.8 per thousand live births, or nearly ten times the average rate for all the hospitals in the state. In the list of hospitals with no maternal loss are 13 of the group which delivered 1,000 or more infants; it includes 1 hospital outside of Chicago with 1,935 patients, and 2 in Chicago with 2,003 and 3,434 mothers, respectively.

TABLE 8.—*Maternal and Infant Mortality in Illinois Hospitals, 1945*

	Chicago		Downstate		Total State	
	Number	Rate *	Number	Rate *	Number	Rate *
Stillbirths	1,184	21.06	1,300	19.22	2,484	20.06
Neonatal deaths	1,122	19.97	1,515	22.40	2,637	21.30
Maternal deaths	102	1.82	120	1.77	222	1.79

* The rates are per thousand live births.

TABLE 9.—*Causes of Maternal Deaths and Their Frequency in Illinois Hospitals*

International List No.	Cause	Chicago Number	Chicago Percentage	Downstate Number	Downstate Percentage	Total State Number	Total State Percentage
140 and 141	Abortion	15	14.7	21	17.5	36	16.2
142	Ectopic	8	7.8	9	7.5	17	7.6
143 and 146	Hemorrhage	18	17.7	17	14.2	35	15.8
144 and 148	Toxemia	21	20.6	28	23.3	49	22.1
145 and 149	Other diseases and acc	13	12.7	17	14.2	30	13.5
147	Infection	21	20.6	22	18.3	43	19.4
150	Unspecified	6	5.9	6	5.0	12	5.4
	Total	102	100.0	120	100.0	222	100.0

The causes of maternal deaths and their frequency, given in table 9, show that toxemia was the primary factor in 22.1 per cent, infection in 19.4 per cent and hemorrhage in 15.8 per cent. If consideration be given to those deaths attributed to abortion and ectopic gestation, where bleeding was of primary concern, hemorrhage would probably be the leading cause of maternal mortality.

Of the 102 counties in the state, 29 have no hospitals licensed for maternity service, 26 counties each have only 1 licensed maternity hospital, 46 have from 2 to 7 hospitals, and Cook County, which includes the city of Chicago, has 76 hospitals for obstetric care. Summaries were prepared of the obstetric activities in each of the 73 counties which have maternity hospital facilities. A visualization of the data relating to fetal and maternal mortality by counties is afforded by the maps of the state shown in figures 1, 2 and 3. As in previous years these figures show that the northern and central areas of the state have lower mortality rates than the counties in the southern section. An interesting fact is shown in figure 3, which points to a total of 29 counties giving care to 10,534 mothers with no maternal mortality.

SUMMARY

A statistical analysis is presented of the care given to 125,016 obstetric patients in the 232 hospitals of Illinois during 1945.

Operative intervention occurred in 31.8 per cent of all mothers. The rate for forceps delivery was 22.7 per cent, and the rate for cesarean section was 3.6 per cent.

Complications were reported in 10.1 per cent of the mothers, with genital infection, preeclampsia and postpartum hemorrhage as the leading conditions. A study of the more carefully prepared hospital records indicates that morbidity was present in 8.4 per cent, toxemia in 6.2 per cent and hemorrhage in 4.6 per cent, a total of 19.2 per cent of the mothers. Transfusion was given in 1.7 per cent.

Abortion and ectopic gestation are reported to bear a ratio to the total births of 1 to 31 and 1 to 393 respectively. Again, through selection of more accurate reporting these ratios were found to be 1 to 6 for abortions, and 1 to 71 for extrauterine pregnancies.

Of the 126,309 infants delivered in the hospitals, 98.0 per cent were living, 4.8 per cent were prematurely born and 0.3 per cent were injured at birth.

The stillbirth rate was 20.06 per thousand live births, the neonatal death rate was 21.30 per thousand live births and the maternal mortality rate was 1.79 per thousand live births. There was no maternal death among 47,582 mothers delivered in 118 hospitals.

Of 222 maternal deaths, 49 (22.1 per cent) were due to toxemia, 43 (19.4 per cent) were due to infection and 35 (15.8 per cent) were due to hemorrhage. Abortion was responsible for 36 (16.2 per cent) of the deaths and ectopic gestation for 17 (7.6 per cent). In view of the fact that nearly all of the ectopic deaths and a notable proportion of the deaths attributed to abortion were due to bleeding, hemorrhage takes first

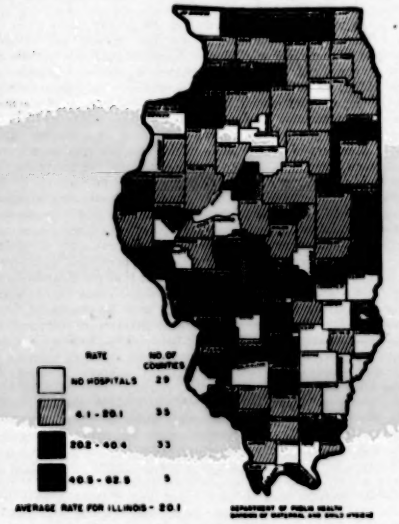

Fig. 1.—Stillbirths in hospitals per thousand live births, Illinois, 1945.

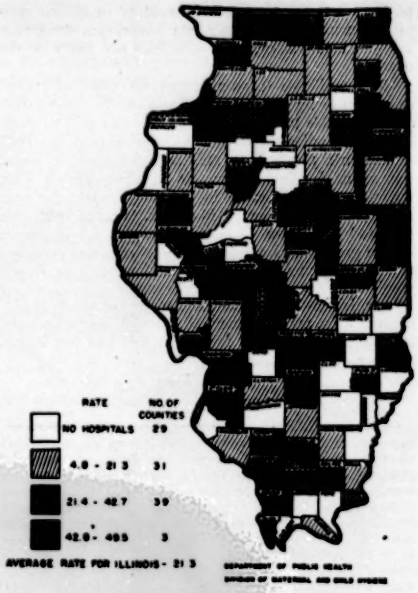

Fig. 2.—Neonatal deaths in hospitals per thousand live births, Illinois, 1945.

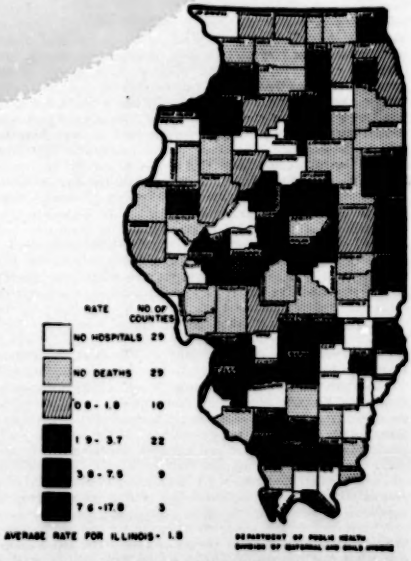

Fig. 3.—Maternal deaths in hospitals per thousand live births, Illinois, 1945.

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place as a cause of maternal mortality in Illinois hospitals during 1945. Other and unspecified conditions are given as the cause in 42 (18.9 per cent) of the deaths.

It is justifiable to stress again the value of critical examination by the hospital staffs of the information made available to them. Reemphasis may well be made that such studies should lead to improvement in trends of obstetric practice, to stricter observance of sound indications for interference, to lowering unduly high operative rates in some institutions, to less frequent resort to cesarean section in others, to more ready use of blood or plasma for prophylaxis or for treatment and to greater awareness of the importance of complete and accurate medical records. Such procedures should result in a decrease of obstetric complications, earlier recognition and more adequate treatment when abnormalities arise and a further reduction of mortality rates, making childbirth safer for the mother and her infant.

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ABSTRACT OF DISCUSSION

Dr. Robert D. Mussey, Rochester, Minn.: Dr. Newberger's paper on the obstetric activities in Illinois hospitals during 1945 gives evidence of careful study of the data and thoughtful preparation. The monthly reports from maternity hospitals, from which his data were obtained, are one of the excellent requirements of the Illinois State Department of Public Health for licensure of all hospitals giving maternity service. The author points out that the records of certain hospitals appear to be more reliable than those of others. For example, the statewide incidence of puerperal infection, toxemia and hemorrhage was 4.8, 2.8 and 2.3 per cent of live births respectively. This incidence is amazingly low when it is compared with 8.4 per cent for infection, 6.2 per cent for toxemia and 4.6 per cent for hemorrhage, which are the figures from "a representative group of hospitals in Illinois whose reports reflected painstaking care and reliability." Table 8 shows a figure of 20.06 stillbirths, 21.30 neonatal deaths and 1.79 maternal deaths per thousand live births. Could the method of collecting and reporting of data by individual hospitals have influenced the accuracy of these figures? It can be claimed that the figure for these deaths cannot be in error. In this connection I shall mention a statewide study of maternal mortality which was carried out for the period from July 1, 1941 through June 30, 1942 in Minnesota. This study was a cooperative enterprise of the Minnesota State Medical Association and the Minnesota State Department of Health. One hundred and five maternal deaths were reported officially for this period. Records, however, were obtained of 112 maternal deaths. In 7 instances, the information that the death was connected with pregnancy was obtained only by matching the birth and death certificates for the period. The maternal death rate of Minnesota for the last six months of 1941 and the first six months of 1942 was roughly 2.0 per thousand live births. If the 7 additional improperly or carelessly reported maternal deaths had been included in the vital statistics, the death rate for that period would have been approximately 2.13 per thousand live births. Largely through the efforts of the late Dr. A. J. Skeel, of Cleveland, the efficient Hospital Obstetric Society of Ohio was organized about 1933. The hospitals comprising this society adopted a plan of organization of the obstetric staffs. The authority for consultation and the administration of maternal care in each member hospital was placed in the hands of a recognized head of the obstetric staff. Standards of maternal care and rules for consultation in complicated cases were set up, and staff conferences were held at which all maternal deaths were discussed. With the backing of this society the "Ohio Plan" has been a potent factor in improving maternal care in Ohio. Vital statistics show how many pregnant women die as compared to the number of living babies born during a given period of time. Dr. Skeel stated that when this formula is applied to the individual hospital it may show a false picture of the actual maternity efficiency of the hospital. From the standpoint of maternity efficiency it would be more accurate to estimate the maternal death rate among women who come to a hospital and are delivered there of a fetus of viable age; this is the delivery or obstetric mortality rate of the institution. For example, in 1931 the obstetric or delivery mortality rate in the city of Cleveland was 5.5 per thousand live births while the total maternal death rate, including all those who had live births, still births, abortions and ectopic pregnancies, was 11.1 per thousand live births. Dr. Newberger's paper is an excellent review of the obstetric activities in Illinois hospitals in 1945. The over-all record is good, but the data show a decided variance in the incidence of operative procedures, in the maternal death rate and in the data obtained from various hospitals. This implies the need for efficient organization of the obstetric staff in all hospitals accepting maternity cases and the need for more care and accuracy in keeping maternity records and in the review of such records by the obstetric staff of the hospital. I agree heartily with the recommendations submitted by the essayist.

Dr. A. E. Kanter, Chicago, Ill.: A question which often arises is: Of what value are statistics? Because statistics can be made to stand for about anything the writer wants them to. But knowing Dr. Newberger and his efficient and reliable method of analyzing statistics, we can certainly accept these as being important. Downstate shows a greater variance in morbidity, mortality and surgical procedures than does the city of Chicago. The reason for this is probably that in Chicago there is a monthly review of all mortality cases, where the operators or physicians involved are invited to a general meeting. Members of all the staffs of the hospitals may be present, and each case is taken up on the merit of the treatment; if there is an opinion that probably the treatment was not of the proper nature, a finding by this committee is sent to the physicians and to the hospitals involved. Men would be a little less likely to introduce surgical procedures when they are not indicated. Constructive criticism helps a great deal in cutting down the number of loose indications for particular treatments. From the viewpoint of teaching, the fact that the mortality and morbidity are greatest in toxemia, infection and hemorrhage, shows that the emphasis in teaching must be placed on these subjects, i. e., on the correction or prophylaxis or treatment of toxemias, hemorrhage and infection. The findings in the southern part of the state are improving primarily because a greater number of men are getting valuable training in obstetrics who settle in the smaller communities. Their efforts, plus the consultants, increase the interest of the general practitioners in obstetrics from the view point of better care and better results. They are certainly producing that result, because there is little difference between the upstate and the downstate statistics, with the exception of a few hospitals where there is little obstetric practice and probably little supervision. If this type of study is done in every state and if the hospitals will take their statistics and study them, there will be still greater improvement in the three greatest scourges in obstetrics.

Dr. Charles Newberger, Chicago: The unreliability of the data submitted by the hospitals, commented on by Dr. Mussey, was stressed in the paper. We know only too well that, unfortunately, physicians and hospital personnel generally are somewhat lax in insisting on better records. This is particularly true with reference to obstetric complications. As to the mortality: We have adopted the system whereby the hospital reports are checked with the Division of Vital Statistics, and in that fashion I believe that we have an accurate recording of the incidence of stillbirths, neonatal deaths and deaths of mothers. Dr. Kanter mentioned the Maternal Welfare Committee of Cook County. This committee studies maternal mortality of Chicago and is doing splendid work. We have talked for some time of the wisdom of instituting investigation of maternal deaths on a statewide basis. We hope that some day this will come about, and I am certain that when it does the losses of mothers and babies are going to be considerably reduced. It is essential for any individual physician to give thought occasionally to the results that he has in his professional practice. It is wise for groups of doctors on hospital staffs to do likewise. The purpose of this particular presentation was to do a similar job on evaluating and taking stock or inventory of obstetric activities and results on a statewide basis.

ABDOMINOPERINEAL PROCTOSIGMOIDECTOMY FOR RECTAL CANCER

The Management of Associated Vesical Dysfunction

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and
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Philadelphia

Abdominoperineal proctosigmoidectomy for rectal cancer is a surgical procedure that is frequently followed by complications. A survey of the various complications has revealed a series of important factors which have aided materially in the postoperative management of these patients.

These complications do not differ greatly from other types of resections on the lower bowel. During the five year eight month period ending May 1946, 480 patients with cancer of the anus, rectum and pelvic colon were examined. Of this number 440 were operated on, a rate of operability of 91.6 per cent. Resection by various methods was performed in 390 instances, a rate of resectability of 81.2 per cent. In 251 patients the technic of abdominoperineal proctosigmoidectomy was performed with 15 deaths, a mortality rate of 5.9 per cent. The rates of survival estimated on 81 patients who were followed were 58.6 per cent for three years and 50.2 per cent for five years.[1] These statistics were obtained in cases in which operative intervention was performed for palliation as well as for cure. Preservation of the sphincter musculature has offered continence estimated as 95 per cent of normal. Impotence after proctosigmoidectomy was noted as 55.5 per cent in cases in which the sphincter musculature was incised anteriorly,[2] whereas without division of the musculature the incidence of impotence was 8.3 per cent. The low incidence can be attributed to the avoidance of inadvertent trauma to the perineal structures. It is in contrast to the percentage of impotence after the Miles type of resection, which is estimated at 95 per cent.[3]

Vesical dysfunction subsequent to abdominoperineal proctosigmoidectomy for carcinoma of the rectum or sigmoid cannot be considered an incidental complication. As the surgical procedure is of relatively recent introduction, it is obvious that only a few investigators have been able to portray their observations on the occurrence or the management of this serious complication. It is conceded universally that this postoperative urinary complication to the procedure constitutes one of the major problems of management.

Those patients on whom resection has been performed return to normal living and to normal habits if the bladder can be made to function correctly. Paralytic atony of the bladder does not occur in every instance in which proctosigmoidectomy is performed, but when it does occur the vesical dysfunction portrayed by these patients is typical. There is complete urinary retention. If the retention is permitted to continue untreated and uncontrolled, dribbling of overflow develops, infection intervenes and urosepsis may occur. The urinary retention following the procedure unquestionably is due to the trauma or more often to severance of the sympathetic and parasympathetic nerve fibers (fig. 1). These fibers constitute the inferior hypogastric or pelvic plexus and innervate the internal vesical sphincter and the detrusor urinae muscle. By the removal of this plexus there is an interruption of the efferent and afferent stimuli to and from the bladder. According to Hill, Barnes and Courville[4] the nature and extent of injury to the nerve elements may vary considerably. The bladder deprived of stimulation by the interruption of the spinal arc becomes a hapless reservoir (fig. 2). Acute urinary retention with associated vesical distention occurs. The bladder musculature, suddenly relieved of all stimulating nerve impulses, rapidly becomes atonic. The walls become thin; massive diverticulation occurs; and the viscus becomes a functionless, thin-walled, irregularly shaped, dilated, noncontractable reservoir laden with infection. It is for the restoration of a normally functioning bladder that a concerted attempt has been and is being made.

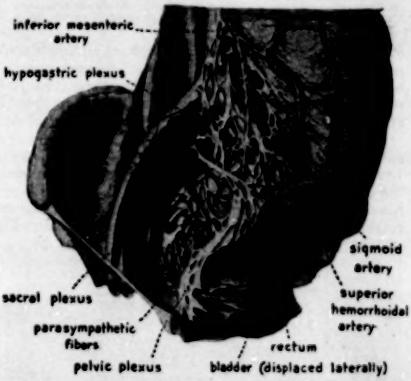

Fig. 1.—A dissection is shown of the pelvis and the ramifications of the sympathetic and parasympathetic nerves entering into the formation of the pelvic plexus.

In an investigation of the problem of vesical dysfunction after proctosigmoidectomy the departments of urology and proctology have cooperated.

Our conclusions were based on an unselected series of 251 persons on whom abdominoperineal proctosigmoidectomy was performed. In this group there were 15 deaths from causes unrelated to the urinary tract. Postoperative follow-up of 251 patients was considered. In 7 of these 251 persons vesical atony developed following the operative procedure. Of these 7 patients 5 are living and well, have returned to normal existence and urinate naturally. The sixth case is too recent to permit accurate interpretation. The seventh patient committed suicide thirteen months after the operation. An immediate psychosis developed and he continued throughout the remainder of his life to exhibit ideas

Professor and head of Department of Proctology (Dr. Bacon), professor and head of Department of Urology (Dr. McCrea), Temple University Medical School and Hospital.

Read before the Section on Surgery, General and Abdominal, at the Ninety-Fifth Annual Session of the American Medical Association, San Francisco, July 4, 1946.

1. Bacon, H. E.: Abdominoperineal Proctosigmoidectomy for Cancer of Rectum, Am. J. Surg. 71:728, 1946.
2. Bacon, H. E.: Evolution of Sphincter Muscle Preservation and Reestablishment of Continuity in the Operative Treatment of Rectal and Sigmoidal Cancer, Surg., Gynec. & Obst. 81:113, 1945.
3. Jones, T. E.: Complications of One-Stage Abdominoperineal Resection of Rectum, J. A. M. A. 120:104 (Sept. 12) 1942.
4. Hill, M. R.; Barnes, R. W., and Courville, C. B.: Vesical Dysfunction Following Abdominoperineal Resection, J. A. M. A. 109:1184 (Oct. 9) 1937.

of persecution. The atonic condition of his bladder continued from the time of operation until his self-inflicted death.

The changes in the bladder after abdominoperineal proctosigmoidectomy are occasionally dramatic. The acute urinary retention that immediately follows the

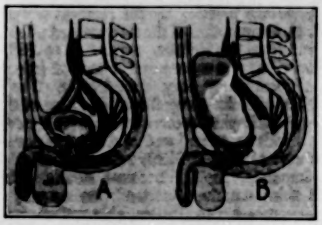

Fig. 2.—Schematic drawing showing the reaction of the bladder before and after removal of the pelvic plexus. Following division of the nerves, the bladder becomes atonic and greatly dilated. *A*, normal relationship of bladder and nerves; *B*, atonic bladder after division of the nerves.

surgical procedure is usually complete, although some persons may void small quantities at frequent intervals but exhibit massive amounts of residual urine. In other patients overflow incontinence may develop quickly after surgical intervention.

An atonic state of the bladder quickly develops after surgical interference with the nerves and nerve plexus.[5] Diverticulation of the bladder rapidly occurs following the inception of an atonic state. The diverticula do not have the narrow orifices that are usually seen but are rather large outpouchings of the bladder wall. The

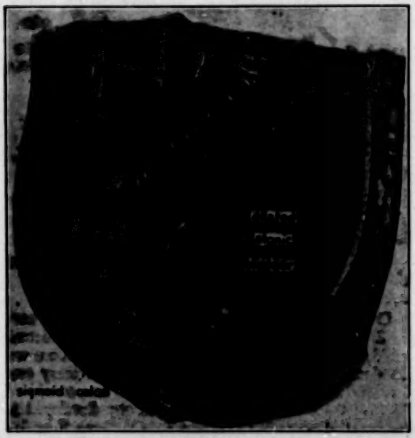

Fig. 3.—The greatly dilated and atonic bladder following operation is shown. The detrusor urinae cannot contract and the bladder must be continuously emptied by catheter. The rectum has been resected and the sigmoid colon has been brought down to empty externally.

bladder becomes irregular in contour, has a greatly increased capacity and remains an inert reservoir lined with mucous membrane (fig. 3). A state of chronic urinary retention ensues if the acute retention is not relieved continuously. Thus, two factors are constant if relief of chronic retention is not accomplished, namely, overflow incontinence and diverticulation of the bladder. Infection is invariably a factor in chronic retention. The greatest predisposing factor to infection in the urinary tract is stasis of the urinary flow, regardless of its cause. Stasis is evident in the presence of residual urine. The ischemia of the vesical mucosa during retention is another factor which fosters infection. The normal vesical mucosa is known to be extremely resistant to infection, but when it is subjected to continued ischemia its protective properties disappear and permit infection to occur.

During the surgical procedure of abdominoperineal proctosigmoidectomy, definite injury to the sympathetic and to the parasympathetic nerves occurs (fig. 4). The extremely important inferior hypogastric or pelvic plexus is subjected to injury. This plexus contains both types of nerve fibers and normally lies beneath the peritoneum on either side of the ampulla of the rectum. The internal vesical sphincter subsequent to

Fig. 4.—The sympathetic and parasympathetic nerve fibers forming the pelvic plexus are inadvertently torn by the surgeon while freeing the attachments of the sigmoid and the rectum.

the operation is unable to function and remains in a state of contraction because of an apparent predominant sympathetic influence; the detrusor urinae is unable to contract because of the loss of parasympathetic innervation (figs. 5 and 6). Due to the loss of innervation it has not been considered necessary to perform a transurethral resection to establish normal urination. It is to the apparent nerve imbalance that the management of vesical dysfunction subsequent to proctosigmoidectomy is directed.

INFECTION OF THE URINARY TRACT

Infection of the bladder is a factor that should always be subjected to the most rigid control. In a survey of 58 cases in which urine was taken for culture before operation, a negative report was returned for 18. Of these, in 15 cases samples of urine were demonstrated by culture to have remained sterile throughout the period of operation and postoperative convalescence. It was surprising to learn that in 40 cases (of the total of 58 cases, or 68.9 per cent) the original culture

5. McCrea, L. E.: Vesical Dysfunction in Anorectal Disease, Urol. & Cutan. Rev. 47:211, 1943.

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revealed a positive growth.[6] The bacteriologic findings of these cultures was not unusual. Streptococci were observed in 10, staphylococci in 9, Escherichia coli in 6, Bacillus pyocyaneus in 2, Proteus vulgaris in 1 and fungi in 2. The remaining 10 cultures revealed a mixed growth. There were only 3 instances in which the culture was primarily negative and became positive postoperatively. In these 3 instances the infecting organism was Staphylococcus albus. In spite of the number of positive cultures none of the patients required specific treatment for relief of symptoms. It is believed that phthalylsulfathiazole (Sulfathalidine) which is routinely administered during the preoperative management for bowel surgery is an important factor in the control of infection of the urinary tract. Poth and Ross [7] have demonstrated sterile urine in three to nine days after the oral administration of the drug.

MANAGEMENT OF VESICAL DYSFUNCTION

Beyond question, the best method of preserving the musculature of the bladder and preventing vesical atony is to maintain a bladder at rest. The rest should be complete and should be maintained until the bladder has regained its ability to function normally. An indwelling catheter properly introduced is preferred to cystotomy drainage in maintaining a bladder at rest. Vesical atony should be anticipated in every instance in which abdominoperineal proctosigmoidectomy is done, and steps should be taken to control such vesical dysfunction before it ever occurs. The routine for the preoperative and postoperative management that has been found satisfactory is as follows:

Preoperative.—A urine culture is taken at the time cystoscopy and cystometry is done. Cystoscopy is of considerable aid in determining vesical involvement by the carcinomatous mass. Cystometry preoperatively lays a foundation for further observance and management of vesical activity. Although the great majority of patients have shown a normal cystometrogram, a certain percentage have revealed a hypotonia before operative intervention. It has been surprising to learn that those patients who exhibit vesical hypotonia preoperatively have been found to have an infiltrating lesion at or in the immediate vicinity of the ampulla of the rectum, the site of the pelvic plexus. To maintain a bladder at rest a catheter is inserted into the bladder immediately before the operation.

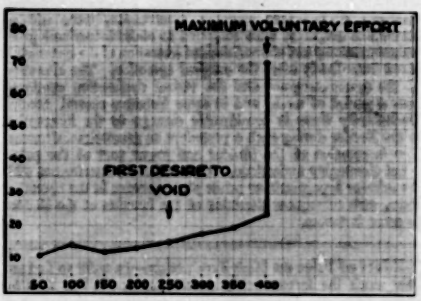

Fig. 5.—Normal cystometrogram. There is a gradual rise of pressure to a point varying between 20 and 30 cm. with a fill of 400 cc. of solution. The first desire to void occurs usually with 250 cc. of fill. A maximum voluntary pressure of 70 cm. is usual.

Postoperative.—Irrigation of the bladder by means of solution of boric acid is performed twice a day. Urine cultures are taken on the fourth and tenth postoperative days at the time cystometry is done. Cystometry permits an accurate interpretation of the patient's ability to void. If the patient is capable of exerting voluntary pressure of 70 cm. on the tenth day, the catheter is removed and the patient is instructed to void. If the patient voids, a catheter is reinserted immediately and the presence or absence of residual urine is ascertained. If more than 60 cc. of residual urine is present the catheter is permitted to remain in situ until the bladder is capable of more complete emptying. If the patient is unable to void, Syntropan (200 mg.) is administered orally three times a day to decrease the tone of the smooth muscle of the internal vesical sphincter. Repeated cystometric readings are subsequently taken to determine the functional ability of the detrusor urinae. The Syntropan is continuously administered until normal voiding occurs. In not a single instance, except in 1 patient who exhibited evidence of psychosis, has there been failure to resume normal urination.

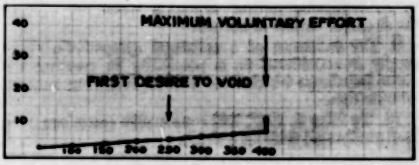

Fig. 6.—Hypotonic cystometrogram. This is a typical curve following proctosigmoidectomy when vesical atony occurs. There is a gradual rise to 10 cm. or below with 400 cc. fill. The first desire to void may vary greatly or may not be experienced by the patient. The maximum voluntary effort is slight. Urination is impossible, as the detrusor urinae cannot contract because of the lack of innervation.

SUMMARY

1. A résumé of the management of vesical dysfunction in 244 patients with rectal carcinoma who were subjected to proctosigmoidectomy has been presented.

2. Paralytic atony of the bladder with retention of urine occurs frequently after resection of the rectum for carcinoma unless measures are constantly taken to prevent it.

3. Vesical dysfunction following proctosigmoidectomy is due to trauma or the inadvertent removal of the inferior hypogastric or pelvic plexus. For this reason transurethral resection has not been performed in a single instance.

4. There were 7 instances in 244 cases in which normal micturition was impossible at the time of discharge from the hospital. Of these 7 cases, 5 returned to normal voiding and are without residual urine. One became insane and committed suicide thirteen months after operation. One case is too recent to evaluate.

5. The best possible procedure to maintain normal musculature is to maintain a bladder at rest. This may be accomplished by continuous drainage with a catheter.

6. Urinary retention may be transitory or may be present for days, weeks or even months. Urinary retention may be permanent if paralytic vesical atony occurs.

6. McCrea, L. E.: Management of Vesical Dysfunction in Anorectal Disease, paper read before the forty-fifth annual meeting of the American Proctologic Society, San Francisco, June 30, 1946.

7. Poth, E. J., and Ross, C. A.: Clinical Use of Phthalylsulfathiazole, J. Lab. & Clin. Med. 29:785, 1944.

7. Positive urine cultures do not always denote cystitis, but a constant guard against cystitis should be maintained. It is believed that phthalylsulfathiazole (Sulfathalidine) administered routinely in preparation for bowel surgery exerts a bacteriostatic effect on organisms found in the urinary tract.

8. The oral administration of 200 mg. of Syntropan for its effect on decreasing the tone of the smooth muscle of the internal sphincter has been found to aid in reestablishing normal urination when the tone of the detrusor urinae is normal.

9. The existence of a collateral sympathetic nerve supply is considered as a possibility in creating the nerve imbalance which is so evident following surgical intervention.

10. To May 6, 1947, 140 consecutive resections have been performed without a death.

ABSTRACT OF DISCUSSION

Dr. Curtice Rosser, Dallas, Texas: We are no nearer to agreement concerning the mechanism of this complication. Dr. Bacon is convinced that injury of the nerve supply is entirely responsible, agreeing with Dr. T. E. Jones. Yet Coller and his associates and more recently Marshall, reporting from the New York Memorial Hospital, have stated that endoscopic examinations and cystograms disprove the neurogenic theory. Marshall believes that widespread and bilateral denervation would be required to bring about long continued dysfunction. Marshall and his associates found that the percentage of patients with severe urinary difficulty (8 per cent lasting over three months) was approximately the same whether combined abdominoperineal or posterior resection only was done. They concluded that the dysuria is due to a sag of the bladder, bladder neck and prostate resulting from the dissection at the base of the bladder and removal of the support of the rectosigmoid colon, with consequent alteration of the arrangement of the urethra and external sphincter of the bladder. One of their patients was completely relieved by surgical elevation and fixation of the bladder. I have reviewed a consecutive series of 100 cases, terminating last March 1, in which different technics were used. There were 92 cases of abdominoperineal resection, 3 in two stages, 6 of a one stage anterior resection, as described by Rankin, and 2 of perineal resection following colostomy. Forty-three per cent of the patients were women, and it is noteworthy that while temporary dysuria occurred in a number of the women, in none did it continue for a long period, which agrees with my previous experience. It was found that voiding in the upright position with the torso bent forward was a helpful device for these patients. Excluding these 43 women and the 5 patients who died as a direct result of the surgical procedure, 52 male patients remained. Of this group 6, or 11.5 per cent, had dysuria which continued more than three months. One of these men, whose ureter had been severed, was cured by ureteral repair. Another, whose prostate had been a matter of concern for ten years before he submitted to surgical intervention, still defends its integrity from the urologist. One patient had his prostate removed three years after his rectal resection, at the age of 75. The third had an unmistakable "cord bladder" of neurogenic origin, which was relieved but not cured by resection of the median lobe. In the only patient with definite urinary incontinence, the symptoms persisted until his death from local recurrence some months later. One patient had a transurethral resection in the hope of relieving pain, which later was found to be due to recurrence involving the bladder. The last patient, an elderly man, was entirely relieved by prostatectomy. Since the presence of an indwelling catheter for long periods is not without danger, it is urged that after the first removal of the catheter the presence of residual urine be checked for several days, using a firm small coudé catheter to avoid injury and this procedure be continued until the bladder demonstrates its ability to completely expel its contents.

Dr. Roger W. Barnes, Los Angeles: The large series of cases on which their conclusions are based make the paper of Drs. Bacon and McCrea most valuable. It is surprising that in so few of their patients did there develop a vesical hypotonus following abdominoperineal proctosigmoidectomy—only 7 of 244, an incidence of 2 per cent. In answer to a questionnaire sent by Dr. Malcolm Hill in 1937, more than half of 59 leading proctologists reported that over 50 per cent of their patients had vesical dysfunction after this operation, and 32 of the 59 who answered the questionnaire stated that two thirds or more of their patients had disturbances of the bladder. It is probable, therefore, that most surgeons have a higher incidence of this complication than is reported by Drs. Bacon and McCrea. Some surgeons have advanced the theory that nerve injury is not the cause of vesical dysfunction following abdominoperineal proctosigmoidectomy. A study of the postoperative bladder in these patients, however, reveals all the characteristics of the neurogenic bladder—a rounded deformity of the dome in the cystograms, a hypotonic curve by cystometric study, as Dr. McCrea has shown, and relaxed posterior lip of the bladder neck as seen through the cystoscope. The management of the bladder in these instances is important, and the use of the indwelling catheter as described by Drs. Bacon and McCrea is to be recommended. Their evaluation of the tone of the bladder by cystometric study to determine the proper time for removal of the catheter is an innovation and adds to the accuracy with which these patients can be treated.

Dr. Lowrain E. McCrea, Philadelphia: I wish to thank Drs. Rosser and Barnes for their comments. We agree that the cause of vesical atony is a rather controversial subject. We also agree that a great many of the patients on whom proctosigmoidectomy is performed are in the prostatic age and that a certain percentage of them have prostatic hypertrophy or obstruction of the vesical neck in varying degrees. There is no argument at all in the management of these cases. If a man has a prostatic obstruction there is only one answer—to take it out. The method of procedure for the prostatic removal is that of individual choice as governed by each patient. We believe that a bladder having obstructive factors shows increased vesical dysfunction following such an operation as proctosigmoidectomy because of the lack of normal nerve influence. The cases of vesical dysfunction which we have considered are only those in which the patients presented a normal cystometrogram before operative intervention, were without obstructive uropathy, were subjected to abdominoperineal proctosigmoidectomy and showed decided alteration of the cystometric curve immediately after the surgical operation. The alteration of the cystometrogram and the vesical dysfunction continued over a period of weeks and in some instances several months. Undoubtedly there is considerable damage to the innervation to the bladder during such a procedure as proctosigmoidectomy. The innervation of the bladder and lower part of the pelvis is not thoroughly understood, and considerable interference with the inferior hypogastric or pelvic plexus occurs in the operating room, with subsequent alteration of the function of the bladder in some instances.

V 13
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Effect of Flies on Milk Production.—In order to find out how much the farmer really benefits by controlling flies on range cattle, the Department of Agriculture cooperated in a large scale test with the state people in Kansas. A similar test was made in Florida on dairy cattle. They found that in the range herd where the flies were controlled with DDT the weight gain during the summer averaged 50 pounds more, per animal, than in a similar herd where no spraying was done to control the flies. In the Florida experiment with the dairy cows we found that the cows gave 10 to 15 per cent more milk when the flies were controlled. About $50,000 was spent in these experiments on DDT. There's already a profit of $10,000,000, with a possibility of reaching at least $100,000,000 every year.—Lambert, W. V.: Research Yields Billions, *Science News Letter*, April 12, 1947.

Clinical Notes, Suggestions and New Instruments

INTRAOCULAR PENICILLIN IN SEVERE INTRAOCULAR INFECTION

Report of Case

LOUIS R. NAAS, M.D.
Pittsburg, Kan.

Recently there have been a number of reports on the use of penicillin in endophthalmitis and panophthalmitis. The results obtained by its use in this case, however, were so dramatic and so surprising that they are worthy of being reported.

The patient, a boy aged 10, was chopping wood when he was struck with a piece of wood just nasally and below the center of the left cornea. Twenty-four hours later he consulted his family physician, who referred him to me. Thus the accident had happened about thirty-six hours before I saw the patient.

Examination of the left eye revealed a decidedly injected, chemotic eye, with a perforation about 2 mm. long just temporally and below the center of the left cornea. The wound was ragged, and there was a yellow infiltrate in the cornea completely surrounding the wound. The lower half of the anterior chamber was filled with a hypopyon. There was a gelatinous membrane across the upper part of the pupil, which was all of the pupil that could be seen. The aqueous humor above the hypopyon was gelatinous and filled with shreds. The iris was greatly congested and appeared to be plastered against the anterior lens capsule with a plastic exudate. The fundus could not be seen.

The lids were edematous, and saving the sight of the eye, which was extremely painful, seemed to be impossible. The patient was admitted to the hospital. He was given 3,000 units of tetanus antitoxin. Penicillin was given intramuscularly every three hours, 20,000 units. The aqueous humor was allowed to escape by depressing the lips of the wound with a probe, and the anterior chamber was filled with a solution of penicillin, 500 units to the cubic centimeter, using an ordinary hypodermic syringe and needle through the wound. This procedure was carried out at 6 p. m. Atropine was instilled into the eye. The application of hot compresses and penicillin ointment every three hours was ordered to be continued until the next morning. At this time the hypopyon had disappeared, but the iris was plastered against the lens, the pupil was covered with a plastic exudate and the aqueous humor, which was full of shreds, appeared gelatinous. The chemosis and injection had subsided little if any. The pupil had been dilated but little. A 10 per cent solution of neo-synephrine hydrochloride was added to the atropine instillations, three times a day. Again, the anterior chamber was evacuated by depressing the lips of the wound with a probe, and the aqueous humor was again replaced with a solution of penicillin. Hot compresses were continued. That evening there was definite recession of the chemosis and injection, the edges of the wound were much cleaner and the pupil was well dilatated. There was some pigment and exudate adherent to the pupillary area of the anterior capsule, and a long fibrinous string of exudate was attached to the cornea at the area of the wound. A blunt forceps which was inserted through the wound grasped and removed this string of exudate. Some aqueous humor was lost. The remaining aqueous was again evacuated, and penicillin was injected. The instillation of atropine was now reduced to once a day, and the application of hot compresses was continued. The following morning, except for a dilatated pupil and a slight amount of pigmented exudate clinging to the center of the anterior lens capsule, the eye was to all appearances a perfectly normal one with a clean puncture wound and little ciliary injection. The chemosis was gone. Again the anterior chamber was evacuated, and penicillin was injected.

This time, however, it is probable that too much solution was put in, as the patient had great pain for an hour after its injection. The eye, which from then on appeared normal except for a normally healing scar of the cornea and an ever decreasing exudate on the anterior capsule, was watched carefully for one month. The patient was dismissed from the hospital three days after his admission; he continued to use penicillin ointment and hot compresses three or four times a day at home. The eye was kept covered for a week.

One month later the eye exhibited a small corneal scar just up to the edge of the undilated pupil, and the patient's vision, uncorrected, was 20/20 in the right eye and 20/25 in the left eye. After the instillation of atropine his vision required the following correction: right eye-25x15, left eye-25-25x155. With this correction, the patient's vision was 20/15 in either eye. There remained a few spots of pigment where the iris had been adherent to the lens, which were visible only under magnification.

The evacuation of the chamber and the injection of penicillin were done while the patient was in bed, under tetracaine hydrochloride anesthesia. Unfortunately cultures were not made, so the causative organism is not known. I feel confident that this eye would certainly have been lost if penicillin had not been available. And if such a result can be obtained in a traumatized eye, there is no reason to suppose that the same result could not be hoped for in treatment of infection following surgical intervention, provided the organism is sensitive to penicillin.

Council on Pharmacy and Chemistry

REPORT OF THE COUNCIL

The Council has authorized publication of the following report.

AUSTIN SMITH, M.D., *Secretary.*

DRUGS FOR OBESITY

The control of obesity is difficult because patients usually demand treatment that would produce miraculous changes in appearance almost overnight and refuse to abide by a scientific reduction of diet necessary for the average case. The overweight are therefore easy prey for the distributors of questionable preparations offered as specific antiobesity drugs. Years ago such preparations were characterized by flamboyant claims for curative properties. Today, because of the activities of federal agencies concerned with the control of drug manufacture, labeling and advertising, the claims are worded more cautiously but the implications frequently remain the same. Too often some physicians are duped into recommending some medicament that is offered with more enthusiasm than scientific support.

From time to time the Council on Pharmacy and Chemistry, the Bureau of Investigation and THE JOURNAL have drawn attention to the more objectionable preparations. Frequently the substances have contained essentially stimulants, hormones such as thyroid, laxatives or a mixture of these drugs. In spite of the teaching of the best informed physicians and of the vigilance of the American Medical Association and other agencies, preparations of this class continue to be exploited.

The Council on Pharmacy and Chemistry has accepted for inclusion in N. N. R. amphetamine and amphetamine sulfate with certain well defined uses (see New and Nonofficial Remedies, 1946, p. 279). It has not accepted mixtures of amphetamine and other potent agents. Such potent drugs must be administered according to the needs of the patient and cannot be offered in a fixed formula with the belief that the majority of patients will benefit from fixed ratios. Nevertheless a firm by the name of Clark & Clark of Wenonah, N. J. has promoted such mixtures as amphetamine sulfate, thyroid, atropine sulfate and aloin. How reminiscent this practice is of the days of shotgun mixtures in pharmacy.

In the files of the Council is an interesting accumulation of advertising that has been offered from time to time on behalf of the Clark & Clark preparations Profetamine and Clarkotabs. According to an advertisement in the April 1946 issue of the *Bulletin of the Philadelphia Association of Retail Druggists* Profetamine Sulfate Tablets are a brand of racemic amphetamine sulfate. This advertisement bears the interesting eye-attracting headline "Accepted!" although an asterisk refers the reader to much smaller print which reveals that the

preparation is "accepted by thousands of leading physicians throughout the country." In view of the significance of the word "accepted" in ethical advertising, one wonders concerning the motives of the writer of this advertisement when this word was included in the copy.

Clarkotabs, according to an advertising card having the mailing date Dec. 20, 1946, is "The Original Triple-Formula Obesity Preparation." The card bears in part the following revealing formulas:

Formula No. 1—Grey

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Atropine Sulfate	1/100 gr.
Aloin	¼ gr.

Formula No. 2—White

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Atropine Sulfate	1/100 gr.

Formula No. 3—Pink

Amphetamine Sulfate	5 mgm.
Thyroid	1 gr.
Phenobarbital	¼ gr.

As if this shotgun approach to the problem of obesity was not a sufficient insult to the intelligence of the medical profession, the advertisement previously referred to offers Profetamine Sulfate Tablets " as a supplement to Clarkotabs in certain stubborn obesity cases." The cases must certainly be stubborn if they would not respond, one way or another, to a mixture such as amphetamine and thyroid!

More recently "Clarkotabs" have been advertised to physicians and pharmacists under the name "Clarkotabs Modified," in which Formulas No. 1, No. 2 and No. 3 have apparently been "modified" by substituting n-methyl amphetamine hydrochloride for amphetamine sulfate. Presumably the modified tablets are available in either the colors of the old formulas—gray, white and pink—or an eye-dazzling new combination of green, blue and yellow. In the November-December 1946 issue of the *Bulletin of the Philadelphia Association of Retail Druggists* is a full page advertisement for Clarkotabs Modified, opposite which is another page-wide announcement to the effect that Clark & Clark has decided to use desoxyephedrine hydrochloride in its formula "instead of the probably less active or less desirable amphetamine sulfate." According to the firm, this change, "even though it is made in the interest of better and more precise therapeusis of obesity, will probably be of temporary duration because Clark & Clark has had under extensive clinical and toxicological study for quite some time a *new, different* and *more physiologic* amphetamine derivative than any hitherto available." This dramatic and what the firm probably considers awe-inspiring statement is concluded with the following note:

> The new amphetamine derivative shall also be available, plain, for use wherever a better and more physiologic amphetamine compound is indicated. Clark and Clark will keep you and the medical profession properly and promptly informed on any and all progress in this field.

If there are any members of the medical profession who are breathlessly awaiting a remarkable new contribution to therapeutics, they may take a few relieving inhalations, as confidential information reaching the Council suggests that the compound that is being investigated will never set the world on fire.

Some indication of the philosophy of the individuals who promoted such advertisements as the one in the November-December issue of the P. A. R. D. *Bulletin*, is shown by the fact that n-methyl amphetamine and desoxyephedrine are actually chemical synonyms, which the firm did not bother to explain in its advertisement despite its concluding resolution that it will keep the medical profession "properly and promptly informed."

Clark & Clark indicate that its adoption of a change in formula was based on recommendations of its Department of Research and Clinical Investigation and on the work of Novelli and Tainter.[1] The latter observed in 1943 that dextro methyl benzedrine (desoxyephedrine) had less circulatory action and no less, or possibly greater, central stimulant action than amphetamine. Perhaps the firm wishes the reader to infer that its Research Department was righteously cautious in waiting three years to select desoxyephedrine to replace amphetamine in its formulas for obesity. One cannot help but wonder, however, concerning the significance of recent news of legal action brought against Clark & Clark by Smith, Kline & French Laboratories of Philadelphia for infringement of its patent on amphetamine sulfate. In the Feb. 17, 1947 issue of *Drug Topics* on page 47 is a full page notice sponsored by Smith, Kline & French Laboratories. This notice is headed "U. S. Supreme Court Denies Petition of Clark & Clark to Review Decision of U. S. Circuit Court of Appeals in the Amphetamine Sulfate Case" and reads in part "A permanent injunction prohibiting, until the patent expires, all further manufacture and sale of amphetamine sulfate in medicinal preparations, *which include obesity combinations*, has been issued against Clark & Clark, Charles L. Morris and Robert B. Morris trading as Professional Laboratories." (See end of this report.)

What originality Clark & Clark can claim for Clarkotabs is apparently that of mixing amphetamine with other potent drugs to depress the appetite and on foisting this kind of quackery on the physician and pharmacist rather than on the less informed public. No one can dispute the need for studying closely every patient to be treated for obesity and to prescribe treatment specifically for the individual. Such an unscientific combination of drugs as is represented by mixtures of amphetamine sulfate, thyroid, atropine sulfate, aloin and phenobarbital merits no more than casual comment. Amphetamine appears to suppress the appetite, while thyroid increases fat metabolism. But, as Freed[2] points out, "Thyroid therapy in most cases is of little value" and "often the dose approaches toxic levels." If thyroid is needed occasionally for those who show signs of thyroid deficiency, it should be prescribed to meet the needs of the individual case and not offered promiscuously. Atropine possibly may render the food unpalatable by drying secretions of the mouth, and aloin could be expected to produce cathartic action. Cathartics have long been employed in nostrums for obesity. If something is needed to offset the constipation that may follow prolonged amphetamine sulfate therapy and restriction of diet, more simple lubricants could be prescribed, again to suit the needs of the patient. The fallacy and dangers of overstimulating the body with thyroid and of using laxatives to aid in reduction are well known to the medical profession. Phenobarbital may have been included as a sedative to mask the unpleasant effects of this irrational mixture.

However, Clark & Clark can make few if any claims of originality for weight reduction mixtures. The advertising files of practically any active organization associated with protection of the health of the general population contain specimens of equally objectionable mixtures. For example, in the Council's files one may learn that the Western Research Laboratories of Denver has advertised to physicians a method of treatment for obesity involving the use of tablet combinations of thyroid and digitalis in varying proportions. These tablets were marketed as Thyrodig Tablets No. 1, No. 2 and No. 3, along with Herb Tablets of aloin, cascara and rhubarb compound. A circular entitled "Method of Treatment for Obesity" begins with the fascinating statements "Our treatment for Obesity consists of two types of medication, each in varying amounts, to suit the individual case. We give a gland tablet in the morning and an herb tablet at bedtime" and offers the advice "Six Points to be Remembered: 1. Recommend NO Diet or Exercise. 2. See your patient ONLY once per month. 3. Fill in the complete chart at each visit, using our symbols to designate the medication. 4. Give each new patient complete instructions as to what they may expect from the treatment. 5. Give plenty of the Herb tablet, most obese patients are constipated. 6. Get cash for the treatment, carry no charge accounts."

Another outfit, Morton Pharmaceuticals, Inc., of Memphis, Tenn., has circularized at least part of the medical profession with a form letter warning "F A T can be D-A-N-G-E-R-O-U-S," making reference to a report by Dr. Frederick K. Albrecht of the U. S. Public Health Service. Dr. Albrecht did not give permission for the use of his name. Such unau-

1. Novelli, A. N., and Tainter, M. L.: The Stimulant Power of Secondary and Tertiary Phenyl-Isopropyl Amines, J. Pharmacol. & Exper. Therap. 77:324 (April) 1943.

2. Freed, S. Charles: Psychic Factors in the Development and Treatment of Obesity, J. A. M. A. 132:369 (Feb. 8) 1947.

thorized use of names is to be deplored and the users severely censored. The type of therapy proposed by the Morton company, according to a circular reaching the Council office, consists of O-B-E-C Treatment, for which there are two types of tablets. O-B-E-C Tablets FORMULA A are claimed to contain dl-desoxyephedrine gr. 1/12, Thyroid, U. S. P. gr. 1, Atropine Sulfate gr. 1/250; O-B-E-C Tablets FORMULA B are claimed to contain Phenobarbital gr. 1/4, Rochelle Salts gr. 5, Aloin, gr. 1/4. Apparently Clark & Clark is not the only concern interested in promoting desoxyephedrine as a constituent of a mixture for the treatment of obesity.

Still another concoction for obesity is "Thyrop," marketed by the Cole Chemical Company. Each capsule is stated to contain "Thyroid Substance 1 gr., Pituitary (Whole) 1/6 gr., Ferrous Sulfate 1/4 gr., Ext. Phytolacca 1/2 gr., Ext. Apocynum 1/4 gr., Sodium Bicarbonate 2 1/2 gr., Potassium Bicarbonate 1 1/2 gr., Calcium Phosphate 1 1/2 gr., Calcium Glycerophosphate 2/3 gr." This classic example of a "shotgun" mixture is advertised to physicians for "obesity of endogenous nature or when associated with depressed metabolic function," with a recommended average dosage of one to two capsules three or four times a day, thus representing a dose of from six to eight grains of thyroid daily. The inclusion of Phytolacca and Apocynum places the product fully in line with others of this class, the use of which has been so long and so many times condemned.

From time to time the medical profession must expect to be deluged with advertising material that promises therapeutic miracles for treatment with a minimum of undesirable responses. Physicians should examine carefully every preparation that is extolled to them for use and when in doubt concerning the efficacy of a preparation seek information from authoritative sources. Therapeutics has progressed too far and there are too many truly worthwhile agents available for prescription to warrant any physician lending his cooperation to irrational therapeutics.

ADDENDUM

Since the above report was prepared, certain additional information has been published which throws further interesting light on the case of Clarkotabs vs. rational therapeutics. This information bears out the contention of the report that the chief, if not the only benefit of the company's change from amphetamine sulfate to amphetamine phosphate ("profetamine phosphate") was as an instrument of attacking or evading the amphetamine sulfate patent. Present published information indicates that this object is now being attained. According to the subjoined postcard advertisement of Clark & Clark, "All litigation between Smith, Kline & French Laboratories and Clark & Clark has now been amicably settled" and Clark & Clark may market their Clarkotabs without fear of legal prosecution; but it will be noted on the card that the formulas are identical with those of the original Clarkotabs except that the phosphate is replacing the sulfate.

NOTICE
All litigation between Smith, Kline & French Laboratories and Clark & Clark has now been amicably settled.

CLARKOTABS
T. M. Reg. U. S. Pat. Off.
Improved!!
With *PROFETAMINE Phosphate†
(AMPHETAMINE PHOSPHATE)
†Patent Applied For
Clarkotabs is the weight-reducing method of choice of thousands of physicians everywhere. Now available for immediate delivery.

THE ORIGINAL
Triple Formula Obesity Preparation

CLARKOTABS FORMULAE (Active Ingredients)

FORMULA No. 1	FORMULA No. 2	FORMULA No. 3
Profetamine Phosphate ... 5 mgm.	Profetamine Phosphate ... 5 mgm.	Profetamine Phosphate ... 5 mgm.
Thyroid ... 1 gr.	Thyroid ... 1 gr.	Thyroid ... 1 gr.
Atropine Sulf. ... 1/300 gr.	Atropine Sulf. ... 1/300 gr.	Phenobarbital ... 1/4 gr.
Aloin ... 1/4 gr.		

In units of 3000 tablets (1000 in each of 3 colors): No. 1, Grey or Green; No. 2, White or Blue; No. 3, Pink or Yellow. $22.50 a Unit. CLARKOTABS With Potassium Iodide with 3 each, Profetamine Phosphate instead of 5 mgm. Price $24.50 a unit of 3000 tablets.

PROFETAMINE PHOSPHATE 10 Mg. Tabs. $7.75/2M

CLARK & CLARK—WENONAH, N. J.

*T. M. Reg. U. S. Pat. Off.

NEW AND NONOFFICIAL REMEDIES

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

AUSTIN SMITH, M.D., *Secretary.*

PENICILLIN (See New and Nonofficial Remedies, 1946, p. 212).

The following additional dosage forms have been accepted:

PREMO PHARMACEUTICAL LABORATORIES, INC., NEW YORK

Crystalline Penicillin Sodium: 20 cc. vials containing 100,000 units or 200,000 units.

SCHENLEY LABORATORIES, INC., LAWRENCEBURG, IND.

Penicillin Sodium: 1,000,000 units in 100 cc. vials.

CRESATIN-Sulzberger (Meta-cresylacetate) (See New and Nonofficial Remedies, 1946, p. 113).

The following additional dosage form has been accepted:

SHARP & DOHME, INC., GLENOLDEN, PA.

Cresatin Metacresylacetate (Sulzberger) Ointment: 7.1 Gm. tubes. Contains metacresylacetate 80 per cent, with benzoic acid and ethyl-cellulose.

CAROTENE (See New and Nonofficial Remedies, 1946, p. 613).

The following additional dosage form has been accepted:

WYETH INCORPORATED, PHILADELPHIA

Capsules Carotene Concentrate in Oil: Each capsule contains an amount of carotene equivalent to 5,000 U. S. P. units of vitamin A.

HOMATROPINE METHYLBROMIDE (See New and Nonofficial Remedies, 1946, p. 314).

The following dosage form has been accepted:

ENDO PRODUCTS, INC., RICHMOND HILL, N. Y.

Mesopin Tablets: 2.5 mg.

THEOPHYLLINE ETHYLENEDIAMINE (See New and Nonofficial Remedies, 1946, p. 395).

The following dosage form has been accepted:

WILLIAM H. ROHER, INC., PHILADELPHIA

Solution Theophylline Ethylenediamine: 0.24 Gm. in 10 cc. ampuls.

PERTUSSIS VACCINE AND ANTITOXIN COMBINED WITH DIPHTHERIA TOXOID.—Pertussis Endotoxoid Vaccine with Diphtheria Toxoid.—A suspension of pertussis vaccine in a solution of pertussis antitoxin, made from Hemophilus pertussis phase I organisms combined with diphtheria toxoid. The bacterial suspension is prepared after the technic of Kendrick and Eldering, the bacterial solution by the Strean method, and the diphtheria toxoid is standardized in accordance with the requirements of the National Institute of Health.

Actions and Uses.—For active immunization against pertussis and diphtheria. It is not intended for treatment or for the production of immunity once exposure has taken place.

Dosage.—See under Pertussis Vaccine and Antitoxin Combined and under Diphtheria Toxoid.

AYERST, MCKENNA & HARRISON LTD., NEW YORK

Pertussis Endotoxoid-Vaccine with Diphtheria Toxoid: 10 cc. vials. Each cubic centimeter contains 25 billions of H. pertussis organisms and antigen derived from approximately 25 billion H. pertussis organisms, together with one immunizing dose of diphtheria toxoid. Preserved with Merthiolate 1:10,000.

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SATURDAY, JUNE 7, 1947

THE CENTENNIAL STAMP

On June 9 the third assistant postmaster general, Mr. Joseph Lawler, will present to the House of Delegates of the American Medical Association the stamp issued by the Post Office Department of the United States commemorating the work of the physician; it is issued as a part of the celebration of the birth of the American Medical Association one hundred years ago.

The stamp is a three cent stamp which reproduces the painting "The Doctor" by Sir Samuel Luke Fildes, R.A. The original study for this painting hangs in the Guthrie Clinic of the Robert Packer Hospital in Sayre, Pa. It was presented to the hospital by Mr. Allan P. Kirby. Through the kindness of the hospital this original study will be exhibited in the auditorium at the Centennial Celebration.

The large painting called "The Doctor" which hangs in the Tate Gallery in London was painted from this original study. The physician in the painting is Sir James Clark, F.R.S., K.C.B., who was a physician to the royal family in Great Britain and well known as a scientist and educator. He was also physician to Prince Leopold, later king of the Belgians. He published "De frigoris effectibus" in 1817 and a book entitled "Notes on Climate, Diseases, Hospitals and Medical Schools in France, Italy and Switzerland" in 1820. In 1835 he published his work entitled "Treatise on Pulmonary Consumption," and he also published a book in Italian entitled "Medical Education at Edinburgh." Sir James Clark was born in 1788 and was made a Knight Commander of the Bath in 1866. He died in 1870 at the age of 82.

The painter Sir Samuel Luke Fildes, R.A., chose to portray Sir James Clark not as physician to the Queen but at the bedside of a child of a rural family. He worked many months on this painting. Apparently he had the interior of the cottage shown in the painting reproduced in his own great studio, and walls, windows and even rafters were properly placed before he began to paint. The furniture was also actual furniture used in the studio as part of the model for this picture.

Great interest has attached to the issuing of the stamp. A special ceremony is to be held in New York with a broadcast on the radio. Several of the exhibitors at the annual session have arranged to supply physicians with envelops carrying the stamp as well as first day covers; some of the philatelic societies are also holding special ceremonies.

REDUCTION TIME OF BLOOD

The need for a simple, direct method for estimating the rate of utilization of oxygen by the tissues is obvious. A recent series of investigations[1] suggests an ingenious method based on the rate at which oxyhemoglobin is reduced in the tissues. Spectroscopy of light reflected from the skin will show the characteristic absorption bands of oxyhemoglobin. Also it has been shown[2] that venous compression and resulting hemostasis tend to obliterate the bands of oxyhemoglobin as it is changed to reduced hemoglobin. Under carefully controlled conditions, therefore, the rate of disappearance of the absorption bands of oxyhemoglobin might serve as an index to the rate of oxygen utilization of the skin or tissue examined and this perhaps in turn to the metabolic rate of the subject. Use was made of this principle for determining oxygen consumption by Vierordt[3] in 1878.

An ingenious device for occluding the blood vessels of the hand by an ordinary sphygmomanometer cuff and examining reflected light from the skin of the first interosseous space by a spectroscope has been described in detail.[4] The rate at which the absorption band at 577 millimicrons disappears is then carefully determined in duplicate by a stop watch. The mean reduction time for 317 normal resting subjects was found to be 37.7 seconds, the minimum and maximum values being 25 and 60 seconds respectively.

As the author suggests, the reduction time represents not solely the time required for the utilization of oxygen but also the time necessary to approximate capillary stasis and perhaps other factors. There was a close correlation between alveolar oxygen tension and the reduction time and a less definite but significant relation to systolic and diastolic blood pressures. Nervous disturbances and breath holding likewise were found to affect the value. Thus, as might be expected, factors influencing respiration and circulation affected the reduction time even under the carefully controlled con-

1. Ray, G. B.: Ray, L. H., and Johnson, J. R.: Am. J. Physiol. 147: 630 (Dec.) 1946. Ray, G. B.; Johnson, J. R., and Ray, L. H., ibid. 147: 636 (Dec.) 1946. Ray.[4]
2. Edwards, E. A., and Duntley, S. Q.: Am. J. Anat. 65:1 (July) 1939.
3. Vierordt, K.: Ztschr. f. Biol. 14: 422, 1878.
4. Ray, G. B.: Am. J. Physiol. 147: 622 (Dec.) 1946.

ditions employed. Of greatest clinical interest, however, is the fact that there was a definite relationship (inverse) to the basal metabolic rate. Of the 71 subjects studied, those showing a low basal metabolic rate also showed a prolonged reduction time, whereas those having a metabolic rate in the higher normal range showed a shorter than average reduction time.

As the Long Island workers state, the reduction time of oxyhemoglobin in the skin represents a complicated physiologic measurement. However, in view of the high degree of correlation with the basal metabolic rate, it appears possible that, with sufficient care in technic and intelligence in interpreting results, this novel procedure might prove of considerable value as a rapid, single method for approximating the rate of oxygen utilization in human subjects. Certainly the problem merits further careful study.

SEWAGE DISPOSAL FROM RAILWAY CONVEYANCES

Barringer[1] expressed concern in 1903 over the infection of the roadbeds of American railways through the discharges of typhoid patients traveling over the road while in the infective stage. He argued that "in the well drained but cool and moist soil under the ties and ballast of the modern railway roadbed, baptized day after day and year after year with the albuminous fluids of human excrement, the Bacillus typhosus, once planted in this natural culture medium, will live forever, revitalized at intervals by new infection, perhaps, but in the meantime facultative enough to meet seasonal and other changes." Maxcy[2] now reviews the evidence that has accumulated in a half century of experience since the hypothetical existence of this menace from railways was recognized. The study represents an extensive review of the epidemiologic experience with typhoid in relation to railway sanitation in this country and other countries, particularly Germany, Switzerland and England.

During the years 1906, 1907 and 1908 the United States Public Health Service conducted a detailed epidemiologic investigation. The maps show the Pennsylvania and the Baltimore and Ohio railroads entering and leaving the city from the northeast and northwest, with railroad yards and terminal facilities. Careful examination of these maps and tables indicated no apparent tendency for cases to be particularly numerous in the residential areas adjacent to the railways, yards and terminals in the District of Columbia during a period of years when typhoid was widely prevalent. Epidemiologic investigations of urban typhoid, with particular reference to the location of cases by place of residence, has failed to reveal any definite indication that the incidence of typhoid among persons living in proximity to railroads, terminals and yards is greater than among persons living under conditions otherwise similar but in other parts of the same community.

A report from the Industrial Department of the Metropolitan Life Insurance Company, which was analyzed by Louis I. Dublin, failed to reveal importance for typhoid as a cause of death in various occupational groups, among which are railway enginemen and trainmen and railway yard and track workers. White males engaged in these occupations did not suffer a greater proportionate mortality from this disease than did white males of equivalent ages engaged in other designated occupations.

The review of reports of water borne outbreaks of typhoid occurring prior to 1920 has failed to reveal an instance in which the contamination of the water supply could reasonably be attributed solely or principally to disposal of fecal wastes by railway trains directly into streams in the catchment area or into storage reservoirs, or indirectly into ground waters by flooding or seepage.

Information at present available does not establish the existence of a public health menace resulting from the method of disposal of fecal wastes employed by railways. This does not prove the absence of such a menace. The practice of disposal of fecal wastes along railway rights of way has in the past been a relatively unimportant route of dissemination of the pathogenic micro-organisms which cause the commonly recognized enteric infections. Scattered in this external environment, the chance that any pathogenic fecal microorganisms will survive until effective contact with a new human host can be made is greatly reduced. Exposed to an external environment, and particularly to the effects of sunlight and drying, typhoid bacilli and other related organisms tend to die off with a rapidity varying with the particular species of microorganism and the physical, chemical and biologic conditions.

Maxcy concludes that at times and in particular places the disposal of sewage from railway conveyances has been improper in relation to environment and persons and therefore constituted a nuisance. This has not created a hazard which can be measured in terms of increased incidence of enteric disease. The practice has been relatively unimportant in comparison with many other factors in the environment which are responsible for the maintenance and dissemination of enteric infection and disease under the conditions which have existed in the United States. There remains a possibility that there is a danger below this threshold

1. Barringer, P. B.: An Unappreciated Source of Typhoid Infection, M. Rec. 64: 971, 1903.
2. Maxcy, K. F.: Department of Epidemiology, School of Hygiene and Public Health, Johns Hopkins University: An Inquiry Into the Public Health Hazard of Sewage Disposal from Railway Conveyances, Sanitation Research Project, Joint Committee on Railway Sanitation, Nov. 8, 1946.

of measurement. Even this theoretical possibility can be reduced to insignificance by technical improvements of disposal which are now well within the realm of practical achievement.

Current Comment

MEDICAL SURVEY OF BITUMINOUS COAL INDUSTRY

In accordance with instructions received from the House of Delegates, the Council on Medical Service and the Council on Industrial Health have kept abreast of developments in the Bituminous Coal Mines Wage Agreement. The survey of health, housing and sanitation in the bituminous coal industry which was stipulated in that agreement has been completed; an abstract appears elsewhere in this issue (page 537). Dr. Walter B. Martin of Virginia, who has acted as chairman of a committee to study the situation, has made the following analysis of the medical survey report:

> The recently released medical survey of the bituminous coal industry is a valuable document. It gives a fair appraisal of the medical situation in the soft coal area. The findings in reference to housing, sanitation and recreational facilities would have their counterpart if a cross section of living conditions were studied in almost any part of the United States. It is of especial interest to note that the prepayment plan of providing medical care in coal mining areas is not considered inherently bad by the survey group. In many places this system has resulted in excellent quality of medical service. Failure in other instances has been due to the human element, particularly to a lack of cooperative effort in local areas on the part of the three groups especially concerned. This report serves to direct attention to existing deficiencies and is a challenge to the physicians of this country. Because of the technical nature of many of the problems involved, good medical leadership is necessary to correct these deficiencies. The shortage of physicians and other skilled personnel, together with the need for expanded physical plants, makes the present solution of some of these problems difficult. They can be solved eventually, however, by friendly cooperation between the miners, the operators and the physicians. Wherever possible, medical service for the miners should be integrated with that of the community.

Admiral Joel T. Boone, who conducted the survey, thus summarizes his observations:

> The Report of the Medical Survey of the Bituminous Coal Industry presents convincing evidence that the serious problem of improving the health of the miner, assuring him of better living conditions, enabling him to provide for his family through his own initiative and efforts, and making him a more responsive and responsible citizen of his community is a solvable problem IF labor, management and the medical profession cooperate and work conjointly with a united interest and sincere devotion to a common cause—the good of large numbers of people and a basic industry. Health is a common concern of all groups. Working together for its promotion can help immeasurably to weld the bonds of human interrelationship.

These statements accord with the established policy of the American Medical Association. No doubt there will be increasing opportunity to make these proposals practically effective.

HEARINGS ON THE TAFT-SMITH-BALL-DONNELL BILL

On May 21 Senator H. Alexander Smith of New Jersey, who is chairman of the Subcommittee on Health of the Committee on Labor and Public Welfare of the United States Senate, opened the hearings on the Taft-Smith-Ball-Donnell bill, known as Senate bill 545, which has been previously described in THE JOURNAL editorially and in reports from the Bureau of Legal Medicine and Legislation. On this occasion history repeated itself in reverse order. When the hearings were opened last year on the Wagner-Murray-Dingell bill, Senator Taft appeared and denounced the hearings as organized propaganda in behalf of socialized medicine. This time Senators Murray and Pepper appeared and apparently indulged in recriminations, insisting that the present hearings were propaganda against socialized medicine and that the advocates of the latter were not being given proper time for hearings. Nevertheless, President Truman had sent a message to the Congress a few days previously urging support for nationwide compulsory sickness insurance, and shortly thereafter Senate bill 1320 was introduced, representing the new version of the Wagner-Murray-Dingell bill, this time credited to Senators Murray, Wagner, Pepper, Chavez, Taylor and McGrath. THE JOURNAL will publish shortly an analysis of this measure and compare it with previous versions. Among the first to be heard in consideration of Senate bill 545 were Drs. R. L. Sensenich, chairman of the Board of Trustees of the American Medical Association, and E. J. McCormick, chairman of the Council on Medical Service. Condensations of their statements appear elsewhere in this issue (pages 533 and 534).

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DIAGNOSIS OF CORONARY THROMBOSIS

Steincrohn [1] called attention in 1940 to a new observation said to be helpful in the diagnosis of coronary thrombosis, namely the rhythm and periodicity of the pain as the most characteristic feature of the syndrome. This periodicity holds true for indefinite attacks as well as for those in which the pain and shock are so prominent that the diagnosis is unquestioned. According to him the pain comes and goes in cycles. Morphine should not be withheld when the patient is first seen in an attack, since the pains will continue to recur and remain recognizable before the morphine exerts its full effect. Steincrohn found this pain syndrome invaluable in ruling out the presence of extracardiac anginas such as acute gallbladder disease, ruptured peptic ulcer, acute pancreatitis, intestinal obstruction, acute pneumothorax and pulmonary embolism or infarct. The cause for the recurring pains is not clear. Theoretically the symptom might be explained on the basis of the changing level of anoxemia, which is dependent on the adjustments which the cardiac circulation is called on to make in the first few hours following the immediate shock of the attack.

1. Steincrohn, P. J.: A New Observation Helpful in the Diagnosis of Coronary Thrombosis, Ann. Int. Med. 14: 495 (Sept.) 1940.

ORGANIZATION SECTION

HEARINGS ON S. 545—THE TAFT-SMITH-BALL-DONNELL BILL

Statement of Dr. R. L. Sensenich, Chairman of the Board of Trustees, Before the Hearing May 21, 1947 of the Subcommittee on Health of the Committee on Labor and Public Welfare of the United States Senate.

Dr. Sensenich described the American Medical Association as including 132,659 physicians who are members of the county and state medical societies. The policies of the American Medical Association are determined by the House of Delegates. The members of the House of Delegates, numbering 175, are elected by the respective houses of delegates of the individual states, which in turn are elected by the members of the county medical societies. The Association, thus, is democratic in its organization and in its functions.

He discussed the ten points of its national health program.

It must be recognized that each one of these ten avenues of approach to the problems of health maintenance and necessary treatment reaches directly into each community in the country and directly or indirectly to every individual in that community. The complexity of a problem involving so many factors obviously cannot be adequately dealt with by a single social measure. Likewise it must be admitted that each human being as a mental and physical unit is a more complex structure than any social system that could be devised. So much is dependent on the individual, his capacity, his education, his training, his sense of values and his opportunities that any efforts made in his behalf must take into consideration all of these qualifications.

No social or legal measure can cover this field by any process of compulsion without in the end destroying the very qualities we seek to stimulate and develop in the individual. No social legislation containing those compulsions can be enacted without infringing on the very basic qualities of American freedom. The only social measures compatible with the freedom of our American way of life is that providing opportunity to all and assistance where there is need. Administrators in high position will admit that governmental measures at the top, too far removed from the local community and the individual are, even with the best intent, clumsy and inadequate or restrictive in their final application.

So much is dependent on the education, the interest and the voluntary effort of the individual that elevation of standards and program must be accomplished by local stimulation of effort and cooperation of these individual units in the community. Legislation cannot accomplish those ends. No pattern can be established at the national level that can be practicably applied to the varying conditions in each local community; nor can national regulations deal adequately and fairly in the determination of local need or the application of proper local remedies.

It is therefore evident that effective approach to the problem will rest on the voluntary efforts awakened by stimulation of interest, and development of methods and assistance is demonstrated. It would seem that any legislation directed to this field would be largely concerned with providing financial assistance where need can be demonstrated and the setting up of safeguards to determine equable distribution of that assistance. Contributions from state or local levels should be required in proportion to financial ability. It will be necessary to leave to the local community the administration of local measures without introduction of bureaucratic controls or political interference.

Senate bill 545, introduced by Senator Taft, Senator Smith, Senator Ball and Senator Donnell, more nearly approximates a legislative background for the development of a health program for the American people without destroying or restricting the objectives set forth in the broad national health program of the American Medical Association.

The House of Delegates of the American Medical Association has repeatedly taken action recommending the consolidation of the health activities of the federal government, exclusive of the armed forces and the Veterans Bureau, under a department of health, the head of that department to be a cabinet officer. It was further requested that the cabinet officer shall be a competently trained doctor of medicine experienced in executive administration.

The department of health should not be subservient to any charitable, conservatory or other governmental agency. The American Medical Association opposes the inclusion of the health activities of the nation in a department of health, education and security for the reason that an adequate national health program such as is now in process of development by the American Medical Association could not attain the high objectives sought if it was combined in a department of welfare and security. Evidence to this effect was presented in hearings before the Committee on Expenditures in the Executive Departments, United States Senate, Eightieth Congress. We have copies of the statement to that committee for inclusion in the record of these hearings, if you wish.

There is sufficient reason to maintain that the importance of the health activities is comparable to the importance of other departments and justifies the creation of a department of health of cabinet rank. However, there is equal reason to believe that a national health agency without cabinet rank could better serve the interest of the health of the nation than the inclusion of the health activities with welfare or security, headed by a nonmedical cabinet officer.

In this brief statement, it is impossible to discuss very completely the various features of Senate bill 545. However, certain provisions of the bill should be particularly pointed out, notably the bringing together of all the scattered health activities into a national health agency headed by an outstanding physician; the determination of actual medical needs by requiring state surveys financed from federal funds—this is a highly desirable feature; provisions of grants in aid to states also making some contribution for the extension of medical care to people unable to pay for it; the encouragement of voluntary prepayment plans; the provision for voluntary pay roll deductions of federal employees; periodic examinations of school children, and the provision for encouragement and grants in aid to certain types of research, properly directed.

These provisions of the bill should receive the approval of all those who are interested in a sensible approach to developing methods of extending aid rather than endeavoring to force on the public a preconceived political pattern. It is noteworthy that no effort is made to establish criteria at the national level by which eligibility to a low income classification shall be determined in each local community. Obviously, the section of the country and living costs in proportion to income will have material bearing on that matter.

The appropriation of funds for the support of research in the prevention and control of cancer should be dependent as to the needs for continuation on such cancer research as was formerly under the direction of the Public Health Service. However, the situation might be changed if, as has been proposed, a new committee should be appointed by the President to furnish a central point for coordination of all major cancer research programs. The proposed committee would not be for the purpose of restricting properly organized or equipped effort but rather to prevent the useless expenditures of funds beyond the capacity of facilities or available competent research personnel to carry on that work. Such a committee might well function under this national health agency and might require substantial funds. However, it might be determined that the cancer research conducted under the Public Health Service might be reasonably expanded; but whatever is done should be in proper proportion and well coordinated with other cancer research. Those who are familiar with the research now being conducted and the capacity for expansion have advised of the useless waste of funds if appropriations exceed the amounts that can properly be expanded.

As to the total amount to be authorized annually for a period of five years for the development of the plans for improved health service, it must be recognized that there are no criteria by which the exact amount necessary for this work can be definitely determined. Various figures have been offered along with other legislative proposals. These estimates are frequently predicated on very limited sampling and often suggest that they are influenced by unwarranted enthusiasm for their particular proposal, so widely do they differ from any other reasonable statistical source. The provisions of this bill seem to identify it as being a well planned and sensible approach to meet needs which the whole nation will recognize and approve as a necessary expenditure. The funds to be authorized under

this legislation would obviously not be excessive and would vary as needs are determined or as local conditions make continuing aid to communities unnecessary. It is evident that the bill is not the promotion of a colossal plan of governmental regimentation at tremendous cost such as has been proposed.

Placing the responsibility for the administration of these plans at the community level tends to a more personalized community administration and a better integration of the activities under this plan with voluntary agencies and other local social developments. Especially is it important that the personal choice of physician be preserved and that nothing emanating from national government levels be permitted to interfere with these local and personal medical aspects.

The provision for payments to physicians in the areas in which there would be insufficient income from professional services to attract a competent physician will require careful study. The study of these situations may properly be coordinated with the studying and planning for the establishment of facilities as authorized under the Hill-Burton Law. Advisory councils designated by the governors of states may be helpful. Appointments to these positions should be made on the basis of competence and experience with sound medical guidance and not because of political preferences. Especially priorities given to certain areas in the development of facilities and establishment of plans probably will provoke more discussion than any other features of the administration of the act. However, if the personnel of the advisory council is carefully selected and has the respect and confidence of the public, this should not be unusually difficult. The advisory council has no authority other than advisory. The giving of some authority to the council might well be considered.

I do not wish to take the time of the committee in the presentation of technical data which would add nothing to the discussion and might tend to confuse rather than clarify the issues. The American Medical Association stands ready at any time to submit such detailed information as is available which the committee should desire or will provide more detailed reports of medical experience which might be helpful.

In summary, the bill seems to provide plans and means for the interweaving of government and voluntary social and health agencies in such a manner as to permit the broadest variation in response to local needs. The American Medical Association is interested in the whole field of health and is desirous of bringing to every individual the benefits of the highest quality of medical care. It would seem that this bill would provide the legislative basis for meeting the needs of the lower income groups without imposing a huge, expensive system of regimentation with its inevitable destruction of the quality of medical service. The medical profession will continue its efforts toward the development of its National Health Program and will oppose plans that are manifestly against the public interest.

Statement of Dr. Edward J. McCormick, Chairman of the Council on Medical Service

After stating his qualifications Dr. McCormick said:

The Council on Medical Service was created by the House of Delegates of the American Medical Association in 1943 to study and interpret existing and proposed programs pertaining to the economic, social or similar aspects of medical care, to suggest improvements in such programs and to inform the medical profession of its studies. In its task the Council has made every effort to be objective.

We have approached the problem of better health for the American people in proper perspective to the American way of living. Betterment of health is not a single problem. It is not merely a financial problem. It has many aspects and includes many fields of activity. Dr. McCormick traced the development of the A. M. A. National Health Program. He continued:

As physicians we are trained to study, to learn, to know. Improvements in diagnosis and treatment, in surgery, in drugs, are, as they have been for centuries, continually retested, rejected, restricted or extended according to their effect on the health of the people. So too in our Council's work we have instituted studies so that we may learn and know before interpreting or recommending. Our studies have included the voluntary prepayment medical care plans, the cooperative voluntary industrial or commercial carrier plans and compulsory insurance plans. They have also included studies of group practice, contract practice, private practice, clinic practice and other forms of medical organization. Much of the work has been directed to gathering data and general information.

Under title II, part A of Senate bill 545 is a provision for surveys of medical care. The bill authorizes $3,000,000 to assist states in making a statewide inventory of existing medical, hospital and surgical care preparatory to the formulation of a plan for extending such care as contemplated by part B. This is commendable, since it assumes that the first step is the determination of the needs.

Scientific medical care is rendered only by physicians, although often with the aid of nurses, hospital facilities and dentists. That provision in title II, part A, requiring representation of nongovernmental groups or agencies concerned with the provision of services as well as those representing the users is also commendable.

The medical profession has been charged with a desire to maintain a monopoly in medical care programs. Physicians do have a monopoly in the sense that they are the only persons licensed to practice medicine and to provide such services. However, in financing and in the administration of medical programs the medical profession has recognized the assistance that can be supplied by persons experienced in administration and finance. We do insist on the profession's control over medical problems, and in our "standards of acceptance" for voluntary prepayment medical care plans we say "The medical profession should assume responsibility for the medical services included in the benefits; the medical profession is qualified legally and by education to accept responsibility for the character of the medical services rendered."

Part B of the bill authorizes funds to assist the states in providing general health, hospital and medical services for families and individuals in the low income groups. One of the purposes for which these funds may be used is to "provide for the furnishing of such services to such families and individuals by means of payments (in the nature of premiums or partial premiums or reimbursement of expenses or otherwise) by the state, to any voluntary health, medical or hospital insurance fund or other fund, operated not for profit, in behalf of those families and individuals unable to pay the whole cost of such services or insurance therefor."

The American Medical Association favors this method for financing medical and hospital services for the low income groups, provided it is on a voluntary basis. We have many reasons for saying voluntary as opposed to compulsory and will not enter into a discussion of the point here.

Many agencies exist through which a voluntary medical service program can be channeled. The state medical associations and county medical societies have for many years assisted in providing for medical services for the low income groups. The experiences of these organizations with the Federal Emergency Relief Administration plans, the Farm Security Administration plans and local indigent medical care plans provide knowledge for administering such a program. All types, shapes and sizes of plans were given experimental trial during the depression years. More recently the Veterans Administration plans, while not for the medically indigent, have provided medical societies with an opportunity to learn more of the problems involved in administering a medical care program.

Medical societies are organized in every state, the District of Columbia and most of the counties in the United States. They include in their membership a majority of the practicing physicians. They are in a strategic position to determine local conditions, provide for local variances and assess the value and quality of the services. Their participation in programs also places on them an obligation to maintain a high standard of medical practice.

While the American Medical Association favors the method suggested in the bill for meeting the medical needs of low income groups, it questions the feasibility of a "statewide program" as mentioned in number 4 of part A, particularly if the program includes all medical services—unless this statewide program provides for local differences in need, in utilization and so on. This necessity for considering local conditions is brought out in a study of indigent care programs made by the Bureau of Medical Economics of the American Medical Association. This study points out that only twenty of the forty-eight states reported successful operation of a statewide program under the Federal Emergency Relief Administration. The report states "The observation already suggested is confirmed that no nationwide plan of supplying such a personal service as medical care can be satisfactory. To this may now be added the further observation that it is doubtful if statewide plans are practicable in a majority of the states. There are only twenty states in which the plan can be termed 'successful,' even with a liberal use of the word."

At present some thirty-eight statewide Veterans Administration home town medical care programs and ninety-one voluntary prepayment medical care plans are functioning. This seems to contradict the foregoing statements, but there is an explanation and it lies in the scope of services offered by the plans.

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The Federal Emergency Relief Administration plans offered general medical care, including home and office calls, to recipients. The Veterans Administration and most of the statewide prepayment plans are offering a limited program. Early experiments with plans, other than in Washington and Oregon, showed clearly that the general public preferred a medium priced, partial coverage plan just as experience of automobile collision insurance has shown that the car owners prefer a $25 or $50 deductible policy. As a result, prepayment plans have suited their policies to the needs and demands of the public. Those statewide prepayment plans which do offer a full coverage to subscribers, notably the Washington and Oregon plans, are so constituted as to provide for local—county or area—variations in people, customs, needs, fees and so on. This is true also in the actual administration of many of the Veterans Administration programs previously mentioned. In other words, needs vary in different localities, and plans are flexible to meet these local needs.

Prepayment medical care plans have been successful on both a statewide and a local basis. They have also been successful with both the full coverage and the limited coverage programs. Most of the plans are so organized as to operate in any of the aforementioned categories. Where only local plans exist, they are usually so coordinated as to provide a statewide program.

Through the surveys of medical care provided by the bill, decision might well be made, on a local basis, as to the all inclusiveness or comprehensiveness of any given program; this in turn might well be a determining factor as to whether or not there should be a statewide, a local or an area plan.

Prepayment plans, as well as medical societies, have worked with governmental agencies in the provision of care for special categories and groups. A number of the Veterans Administration programs already mentioned function directly through prepayment medical care plans. In at least one state the medical services of the old age pensioners and other special groups are channeled through prepayment medical care plans. The statutes under which many of the plans operate specifically provide that contracts be made with the various governmental and nongovernmental organizations and units for the provision of medical care either on the basis of contribution (that is, subscription rate or premium payment) or lump sum for all members of the group involved or on the basis of cost plus a fixed fee. The prepayment plans can cooperate under any or all types of these programs.

Much has been said to belittle the scope of the voluntary prepayment medical care plans, yet the growth in this movement has been phenomenal. In 1942 some fifteen voluntary prepayment medical care plans were listed as approved by medical societies and/or the Blue Cross. At present, just a little over five years later, the Council's directory lists ninety-one plans. However, since the Oregon and Washington plans are usually counted as two statewide plans the quotable figure becomes sixty-four. Not only has the number of plans grown rapidly the past few years, but their expansion throughout the United States is even more encouraging. The fifteen plans listed in 1942 were operating in ten states, while plans have now been organized in thirty-seven states and the District of Columbia and are in the process of organization in ten additional states.

The growth in the number of medical plans has paralleled that of Blue Cross plans. Slightly more than eight years have been required for the organization of sixty-four medical plans, while in the first eight years of Blue Cross sixty-nine plans developed.

Again, as with enrolment, the medical plans expansion throughout the country is comparable to that of Blue Cross. In the eight years of the medical plan movement, plans have been begun in thirty-five states which, when added to the early Washington and Oregon plans, make thirty-seven states.

In thirteen of the thirty-seven states with plans, more than one prepayment plan has developed. The effect of local conditions on this development is particularly indicated by the twenty-three plans in the state of Washington, the eight plans in the state of West Virginia, the six plans in New York and the six plans in Oregon.

Enrolment in the prepayment plans has increased rapidly in the past two years. The reported enrolment Dec. 31, 1944 was 1,500,000, Dec. 31, 1945, 2,845,000, while on Dec. 31, 1946 it was approximately 5,000,000. Since the big growth in the number of plans has taken place during the past two years, it is reasonable to assume that growth of enrolment is just beginning. Eighteen of the plans in operation a year or more on Dec. 31, 1946 reported an increase of 100 per cent. The highest increase was 1,110.9 per cent, with seven others reporting over 200 per cent. Whereas we could point to only one really large plan a year ago, we can point today to five plans with more than 300,000 subscribers and six additional plans with over 100,000 subscribers.

Three general types of plans prevail at present. These are cash, indemnity plans, service plans and combinations of the two forms. Using sixty-four as the total number of plans now organized, the breakdown as to type is thirty-one indemnity, twenty-eight combination and six service. Any definite trend toward any specific form of plan is not yet apparent. During 1946 and the first part of 1947 twenty plans were organized. Of these, seven were indemnity, eleven combination and two service. Primarily the determination as to the type of plan rests on the needs and desires of the community in the area in which it is organized. The people of our country, according to available evidence, recognize the desirability of prepayment plans for medical care. Many individual citizens still need to be convinced. This means education as to the amount of personal funds which the worker will transfer from nonessential services or goods to protection against the costs of illness. Actually the combination type of plan acts as a service plan for persons in the low income group, so that more than half of the organized plans do operate to protect those in the low income group from excessive charges.

Casual observation might suggest that those plans which offer full coverage are preferable; yet, realization of the tremendous number of problems involved in controlling the abuses on home and office demands for physicians (abuses which would be vastly increased in a compulsory plan) and realization, too, that most workers require help only for the serious illnesses makes evident the desirability that full coverage programs await further experience with plans involving less difficulties. Physicians who have had experience in the illogical and unnecessary demands that can be made on time by those who abuse the plans realize that any general program of this type would be impossible to establish with a good quality of medical care.

Combination plans, as was previously mentioned, are a protection for those in the low income groups against excessive charges. These plans provide this protection through utilization of income limits to determine which subscribers are eligible to benefits without additional charges. Those below the specified income limits receive the benefits in full; those above the specified income limits may be charged additionally. Income limits in these plans vary from $1,500 for a single subscriber to $5,000 for a family. Although many variations are used, the most common seems to be $2,000 for a single subscriber and $3,000 for a family. Actually, the importance to the population as a whole of this agreement on the part of physicians to furnish services to a particular income group for a specified fee is overemphasized. Overall studies of existing charges in relation to patients' incomes actually show that the income limit theory is closely adhered to by the profession even in their private practices. Yet the idea of income limits does serve a purpose in protecting individuals against unscrupulous practitioners, and obviously it is the charge made by the unscrupulous physician that causes much of the furor concerning the exorbitant cost of medical service. Any proposal must differentiate clearly between medical services as provided by physicians and the overall health services which include hospital care, drugs and medication, nonphysician and other services in discussion of this problem.

"Basic issues everywhere," it has been said, "fall into the same pattern, all turning on the contest between those who seek security even if they have to give up freedom and those who think that in the long run the security of the individual will only be possible if freedom is retained." Benjamin Franklin said "They that can give up essential liberty to obtain a little temporary safety deserve neither liberty nor safety." George Washington wrote "He who seeks security through surrender of liberty loses both."

The American people prefer not to be coerced. You can reason them into performing in their own way almost any miracle—even winning two world wars. Skeptics have said that voluntary plans for medical care did not succeed in Europe and evolved inevitably into compulsory plans. There appears to be some evidence that democracy also is disappearing in Europe.

We need not model our provision of health care for the American people on any failing technic based on European methods of dictatorship and compulsion; we can find a voluntary way compatible with true American democracy.

Just a few weeks ago Winston Churchill said "In my experience of large enterprises, it is often a mistake to try to settle everything at once." With suitable cooperation from a government that wishes to find an answer to a problem rather than to enslave a profession, a technic will evolve that will provide to every American a high quality of medical care.

Public Relations

SEEKING SUCCESS IN MEDICAL PUBLIC RELATIONS

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The first step in the solution of any problem is an analysis of the problem itself, and one must therefore break down this problem of public relations into its component parts before one can begin to plan the program and the organization necessary for the accomplishment of one's objectives.

Public relations is not a pitched battle of propaganda between two determined and unyielding forces. Its results are no longer measured by the number of column inches of publicity appearing in newspapers. On the contrary, some of the finest accomplishments in the field of public relations consist of new solutions to old problems developed and refined in the crucible of self-respecting compromise and cooperation between persons with divergent views. Such results are usually achieved without benefit of newspaper headlines or the blare of human trumpets. As a consequence, it often happens that only the most discerning recognize an outstanding job of public relations when they see one.

This approach, incidentally, does not mean that one must be tepid in one's convictions; it means only that one must be open minded.

The public relations program of a medical society is a composite made up of the following parts:

1. Relations with the individual members of the society.
2. Relations with other medical organizations such as the specialty groups.
3. Relations with allied groups—dentists, hospital administrators, nurses, pharmacists—and with their respective organizations.
4. Relations with voluntary health agencies such as the Cancer Society, the Tuberculosis Association, and the Society for Crippled Children.
5. Relations with governmental agencies—the state departments of health, welfare, public assistance, public instruction and labor and industry, the governor's office, the state board of medical education and licensure, the state legislature and others.
6. Relations with organizations such as the Rotary and Kiwanis clubs, parent-teacher associations, community chests and women's clubs.
7. Relationship with recognized moulders of public opinion—newspaper editors, civic leaders, the clergy, school teachers.
8. Relations between physicians and their individual patients.
9. Relations with that elusive entity commonly referred to as the general public.

This list is not necessarily complete, but it is detailed enough to illustrate that the public relations of a medical society is by no means a simple problem.

In the development of medical public relations, one of the first questions which must be answered relates to the part to be played by the various organizations and individuals concerned. For example, what part of the public relations program of American medicine should be handled by the American Medical Association? By the National Physicians Committee? By the specialty groups? By state medical societies? By county medical societies? By other organizations? By individual doctors of medicine?

From a dollars and cents point of view, American medicine is a big business. The total value of the services rendered by the physicians of this country exceeds the gross income of any of the large corporations with the possible exception of General Motors.

There are no available figures on the total amount spent for public relations by the physicians of this country, but it is evident that this sum has currently reached huge proportions. Notice the difference, however, between the organization of the medical public relations program and that of a corporation such as General Motors. In the case of corporations, their public relations programs are practically always planned, directed, financed and controlled at the national level under the direction of one individual—usually a vice president. By contrast, medical public relations is a hodgepodge of effort that is generally well intentioned and sometimes well executed but almost never coordinated with similar endeavors on the part of other medical organizations.

The very nature of medical service itself makes centralized public relations for the profession both impossible and undesirable. This fact, however, must not retard our efforts at coordination because—without it—duplication and waste will flourish and important segments of the problem will be overlooked.

The American Medical Association is in the process of reorganizing its public relations program. I hope that one of its first objectives will be to determine what phases of the total problem should be handled by the Association itself, by the National Physicians Committee, by specialty groups like the American College of Surgeons and the American College of Physicians, by state and county medical societies and by private practitioners of medicine. This decision will not be easy, nor will the initial determination remain static. Constant vigilance will be needed to make certain that the gears mesh properly, because public relations problems are fluid and the technics necessary to cope with them must be flexible. Changes will have to be made from time to time. This is admittedly a tremendous task, but in my opinion it is a price which the American Medical Association must pay for the medical leadership of this nation. The alternative is chaos in medical public relations and unwarranted expense for the members of the profession who must pay the bill no matter who does the job or how it is done.

A similar problem confronts state and county medical societies. I understand that those in charge of public relations at the Association headquarters plan to provide state and county societies with counsel and aid in the development of state programs. Naturally this cannot be detailed or extensive, but certain patterns can be developed nationally and modified to fit the local landscape.

Every worth while article I have ever read on medical public relations has stressed the importance of the individual practitioner of medicine, but very few of them have explained just how and when and where an individual physician can do a good job of public relations. This must be spelled out in detail by state and county medical societies for their members.

Let us look at medicine's public relations problem from another angle. Public relations is not something apart from the general program of an organization. It cannot be wrapped up in a package and delivered. It is neither a cover for shortcomings nor a substitute for good works. It should not be turned over completely to a single committee or a single individual in the vain hope that, by the use of some magic formula, public reaction can be suddenly transformed. Good public relations, in fact, depends on good works. It cannot exist in a vacuum. Therefore public relations must be built on the program and the accomplishments of the organization.

Successful public relations is always built on a tripod. First there must be positive and constructive policies; second, effective action, and third, adequate interpretation. If any one of these three legs is weak or missing, the public relations program will topple.

Recently I heard a nationally known public relations consultant say that the trouble with physicians is that they are excellent resoluters and motion passers but poor workers at putting their programs across. It is easy, he said, to pass

motions galore with no more effort than a full throated "aye," but it is something else again to put ideas on wheels and push them through to completion.

What, for example, are county and state medical societies doing to supply adequate health services and facilities to the rural areas of this country? What are they doing to attract physicians to such areas?

Rural health is only one small part of our problem. Organized medicine has, to be sure, acknowledged its responsibilities in this regard; but until we are able to show concrete results, our rural health program is public relations dynamite. Without results an unfriendly newspaper editor can make us look foolish. And there is little a public relations department can do about the situation until the third leg of the tripod—effective action—is made strong.

Public relations, above all else, must be honest. Reporters and editors are entitled to complete and truthful answers to every reasonable question whether the facts are favorable or unfavorable. Otherwise the confidence of the press is lost and so is one's public relations program.

I can visualize a conscientious employee of a state medical society working full time day after day for a year on the problem of rural health without scratching the surface. By the same token I cannot see how active leadership in this field or in any other field can be achieved by referring the problem to a committee composed of busy practitioners of medicine who must sacrifice a part of their livelihood every day they spend working on the problem unless such a committee is provided with competent assistance to follow through the vast amount of detail which must be handled if concrete results are to be accomplished.

That applies, of course, not only to the problem of rural health but also to every other problem in the solution of which a state medical society desires to exercise active leadership, whether it be sanitation, cancer control, industrial health, mental hygiene or the care of disabled veterans.

In the personnel of medical society committees there exists a remarkable pooling of the best medical talent available. Through their expert services, generously contributed, effective solutions to important health problems can be achieved which would be impossible for employees alone or individual members working separately to approach. Medical society committees are the workshops in which basic policies are forged into concrete programs. I salute the busy practitioners who bring to such committee endeavors a quality of service that could not be purchased at any price. But I think it is utterly unfair to expect that they can solve the important and complex problems referred to them without the assistance of paid employees.

In such a maelstrom of contending social forces as exists today it must be remembered above all else that—regardless of whether their decision is right or wrong—ultimately the voice of the people will prevail. Consequently, in matters of health it behooves organized medicine to guide the public to a sane conclusion. As the initial step in this direction, public confidence must be secured.

The medical profession, however, cannot hope to get very close to the soul of the heterogeneous American public by national or state activities alone. Together, these form an excellent foundation; but the superstructure must be built to fit into the local landscape.

Even the most casual reader of medical history must be impressed by the glorious achievements of the profession in its conquest of baffling scientific problems. He must be particularly thrilled when he discovers, on looking more closely, that the brilliance which shines through almost every page of the history of medicine is but the reflection of an unparalleled devotion to the duties of humanitarian service on the part of countless thousands of individual physicians.

Worth while progress in the field of medical public relations will be achieved once we have applied that traditional devotion to duty which characterized the attack on the scientific front to the problems of social philosophy and human relationships.

230 State Street.

Council on Medical Service

"A MEDICAL SURVEY OF THE BITUMINOUS-COAL INDUSTRY"

The National Bituminous Coal Mine (Krug-Lewis) Agreement of May 1946 provided that a comprehensive survey and study of the hospital and medical facilities, the medical treatment and the sanitary and housing conditions in the coal mining areas be made by the Coal Mines Administrator.

The House of Delegates charged the Council on Medical Service and the Council on Industrial Health with the task of keeping in touch with the situation. In accord with this instruction this report and analysis are presented on the "Medical Survey of the Bituminous-Coal Industry" recently released by Joel T. Boone, Rear Admiral (MC), U. S. Navy, director of the Medical Survey Group.

Fritjof Arestad, M.D., Associate Secretary of the Council on Medical Education and Hospitals, has prepared the analysis of that part of the report having to do with hospital facilities.

THOMAS A. HENDRICKS, *Secretary,*
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OPENING STATEMENT

The report entitled "A Medical Survey of the Bituminous-Coal Industry" is unique in that it represents the first nation-wide medical survey of an industry conducted under government auspices. The report itself consists of 244 pages plus a 66 page supplement on "the coal miner and his family." It is profusely illustrated with charts and with pictures depicting both the good and the bad features of the coal mine communities.

The following stand out:

1. Facts, information and comments are entirely impartial and are made with every effort to present all sides of the picture or problem.

2. The miner's health and welfare are as good or as poor as the leadership in the community in which he lives.

3. The "mining community" is neither better nor worse than communities in which many other segments of the working population live.

4. The health and welfare of the miners would be definitely improved by applying the accepted standards of industrial medicine to the bituminous coal industry.

5. Improvement of the health and living conditions of the miner can come about only through the cooperation of labor, management, the medical profession and the community itself. No one of these is responsible, no one alone has the remedy.

6. There should be representation from the civilian medical profession on any trusteeship established to provide medical care and hospitalization for the miners and their dependents.

Purpose

The purpose of the survey was to determine the character and scope of improvement which should be made to provide the mine workers of the nation with medical, housing and sanitary facilities conforming to recognized American standards. In interpreting this purpose the director of the survey states that "its objective was to determine broadly the extent, the adequacy and the characteristics of the facilities and services that most directly affect the physical and mental health of the miners and their families."

Extent of Survey

The survey encompassed medical and hospital services and facilities, housing, sanitation, recreation facilities and the use of leisure time by the miner and his family. It traces the origin and development of the coal mining industry in the United States showing how, where and why it spread from

coast to coast. In tracing the development, observations are made and factual data presented concerning the character of the communities, the economic conditions of the industry, the mine accident record, mine-labor relations, wage rates, miners' earnings, and the age of the mines themselves.

The survey did not direct itself to the economics of the industry other than historically or to the technology of coal mining. Nor was time available to go into the details of such aspects as the prevalence and incidence of specific diseases and illnesses, the extent and nature of nutritional deficiencies, and other specific details which might be necessary in the actual application of the recommendations made.

Methods Used in Survey

The Secretary of Interior selected Rear Admiral Joel T. Boone (MC), U. S. Navy, to direct the survey, leaving the program entirely in his competent hands. The staff consisted of a headquarters staff of advisers on special matters and a field staff made up of five teams. Each team contained a medical officer, an engineer officer, a welfare and recreation officer and a clerical aide.

The nation was divided into five areas for the survey purposes. Since it was impossible to investigate conditions in all the eight thousand bituminous coal mines or even the 2,350 mines in government possession, a sampling program was adopted. The sampling procedure was based on mine population with a final total of 260 mines agreed on (each of which produces more than 50,000 tons annually). These 260 mines produce 18 per cent of the total coal output of the nation and employ 22 per cent of the miners. They are located in 105 different counties, and these counties in turn are located in the twenty-two leading bituminous coal producing states.

Actual visits were made by the teams to the mines, homes, mine communities and hospitals. A standard recording form was devised so that the teams could gather similar data. Both management and labor were asked to supply representatives to accompany the teams, and all investigations were made in the presence of both.

In addition to the team visits, a questionnaire was prepared and mailed to a large number of mining companies and to all district offices of the United Mine Workers union. The information gathered from these questionnaires was used to verify and corroborate specific items of information obtained by the field teams.

HOUSING AND SANITARY FACILITIES

The study of housing and sanitary facilities brings out all the conditions one would expect to find in a nationwide study of any industrial group of workers: miners owning eight-tube radios but lacking a sanitary toilet, owning a modern washing machine with water drawn from an outside well by pail, getting an ever increasing pay envelop without a comparable improvement of living conditions.

The survey teams visited and studied in detail 2,028 homes in the 260 mine areas and observed without detailed inspection approximately 50,000 dwellings. Fifty-seven per cent of the homes studied were company owned. The background or reasons for the development of both types of dwellings is traced in considerable detail in an effort to lend some sense to the "Tobacco Road" housing found in many mine communities.

Isolation, poor roads, rugged topography, uncertainty of mine return and similar findings are all conditions which were given as affecting the development of mine communities.

The range in extremes with respect to housing, water supplies and sanitary facilities is so wide that the median or average conditions are difficult to determine. While a large majority of miners living in company camps have a standard of living unsatisfactory in view of the levels attained by families throughout the United States in comparable income classes, many examples of excellent company-owned housing are available. The housing and sanitary facilities of the miners who do not live in company towns are generally better than in coal camps. The survey indicates that all three—management, labor and the families—are at fault: management because, having instituted the system, it neglected, with notable exceptions, to fulfil the humanitarian obligations of its dual role of employer-governor; labor because its interest in wages and hours seemingly blinds it to housing and sanitary reforms; and the miner because he tolerates eradicable evils.

PUBLIC HEALTH

In consideration of the emphasis on sanitation facilities in the Krug-Lewis agreement, considerable attention is given to public health administration in coal mining communities. It is contended that proportionate allocation of public health expenditures is not made in these areas. Reasons include imperfect local health department organization, lack of specially qualified personnel, unwillingness to expend funds on privately owned property and lack of an educated demand. Deficiencies exist in all phases of public health administration. Water supply and waste disposal, milk and restaurant sanitation, communicable disease control, child care and school health programs are singled out for special consideration. All elements in the community are at fault, but the report emphasizes that much improvement could occur under effective medical leadership and guidance.

Specific Recommendations Regarding Public Health

1. Mining companies should assure safe water supply, adequate sewage disposal and proper disposal of wastes.

2. Management and labor should act together to promote basic sanitation.

3. New legislation is needed relating to water analysis and adequate water and sewerage systems in relation to new housing projects.

4. Compulsory wash and change house legislation is needed.

5. Adequate financial provision for state and county health units is urged.

6. Local groups should acquaint their representatives in the government about specific public health needs.

7. Extensive and continuous health education programs should be inaugurated.

8. Mine operators should encourage physicians to promote the use of health education and general public health services.

9. A demonstration project in infant and child health should be undertaken.

10. Tuberculosis case finding programs are advocated.

11. Improved reporting, recording and analysis of morbidity and mortality data are essential as a basis for needed medical and public health services.

12. Voluntary health agencies should extend their activities into rural and isolated industrial communities.

INDUSTRIAL MEDICINE

The survey teams found that industrial medicine in its modern application is largely nonexistent in the soft coal mining industry. This anomalous situation prevails in spite of the hazardous nature of the occupation. Only 5 per cent of the mines surveyed maintained any kind of regular medical supervision over workers or the working environment. First aid training and practice, once carried to high degrees of efficiency, have lately deteriorated seriously. Emergency medical care, including transportation and hospitalization, call for a high degree of organization and training and maintenance of auxiliary personnel, since mines are frequently located in relatively isolated regions. Physicians in mining areas are, for the most part, unfamiliar with conditions of the work and in consequence exert little real influence over safety and health programs. This situation is reflected also in low standards of physical examination, job evaluation, placement and absentee analysis, all of which are extremely useful functions of the modern industrial physician. Lack of effective industrial accident and occupational disease control is due in part to deficiencies in scope and administration of workmen's compensation laws. The report indicates that some physicians who receive pay roll

deductions for the provision of general medical care still treat industrial disabilities without submitting a separate claim for this service as required under the workmen's compensation laws. Proper use is not being made of agencies designed to rehabilitate disabled civilian workers, and the industry itself has no comprehensive program of restoration, retraining and placement. In regard to industrial medicine, the specific recommendations in the report are as follows:

1. The industry should extend its research activities into all phases of industrial medicine and hygiene and provide consulting services where necessary.

2. Full or part time physicians should be employed to develop and maintain an adequate industrial medical program.

3. Essential elements of an industrial medical service are physical examination, prompt care of industrial accidents, good first aid and emergency facilities, well trained professional personnel, knowledge of working conditions, satisfactory consultant services and the maintenance of adequate records for absentee analysis.

4. The Federal Bureau of Mines should enlarge its scope to include industrial medicine and hygiene.

5. State and local health departments need to extend industrial hygiene services to the coal mining industry.

6. Compulsory rather than elective workmen's compensation acts where they do not now exist are recommended. They should include general coverage for occupational diseases.

7. Proper claims should be made by physicians treating occupational disability in accordance with existing compensation laws.

8. The operators and workers should combine to reestablish first aid training and practice.

9. Medical associations should encourage training in industrial medicine and promote the establishment of special qualifications for practice.

10. Rehabilitation of disabled miners should be supported by the workers and the coal mine operators.

GENERAL MEDICAL SERVICES

A majority of the bituminous coal miners in the United States and their families receive their medical care through a prepayment system by regular deductions from their pay. This system is traditional with them, dating back to the middle of the nineteenth century.

The remoteness of mining communities and other factors that compelled them to provide for housing, water supplies, stores and other necessary provisions also compelled them to attract and retain medical practitioners. As an incentive for physicians to establish themselves in these places, the wage deduction system was instituted to provide funds for an assured minimum income.

The Navy Medical Corps officers assigned to the survey set out to determine the extent of the prepayment system of general medical care in the bituminous coal industry; regional differences, if any, in utilization of the system; the comprehensiveness of the services rendered under the various general prepayment plans; the manner of selecting physicians; the various ways in which plans are administered; the quality of medical care given to miners and their families, and the medical facilities available to miners.

Data were obtained from physicians, mine operators, union officials, medical societies and miners and their dependents at each of the 260 mines selected for the survey.

Extent of Prepaid System

The survey findings show that home and office medical care is provided through some form of prepayment at 155 of the 260 mines surveyed. The remaining 105 mines are generally so located as to allow the employees to live in or near urban communities where private practitioners are available. "Where such (prepayment) plans are in effect, the estimated participation of the employed miners and their families averages more than 95 per cent." These plans are limited primarily to mine employees and their dependents and are not the community-wide type of prepayment plan such as are sponsored at present by medical societies in some thirty-seven states and the District of Columbia.

Regional Differences

Important regional differences were found in the distribution of prepayment plans for general medical care. Plans are more prevalent in areas where housing is or has been provided by mine operators and almost entirely absent in areas where company camps have not been provided. The frequency of prepayment plans is highest in the predominantly rural Southern Appalachians and Rocky Mountains and lowest in the highly industrialized and urbanized Midwestern areas. Prepayment plans are rarely utilized by employees at strip (surface) mining operations that have developed in parts of Oklahoma, Arkansas, Kansas and Missouri.

Charge to Employees

Prepayment is made by pay roll checkoff. The amount ranges from 75 cents to $3 monthly for individuals and from $1.20 to $3 for married employees and dependents, with an average of $1.36 and $2 respectively. No effort is made in the study to correlate the monthly charges with the benefits offered.

Service Provided Under Plans

The usual services offered are office care and necessary attendance on the sick or injured in their homes, provided subscribers live within the company camp or within prescribed geographic limitations. Obstetric care is generally excluded but is sometimes included for an additional fee. Routine immunization is administered without extra cost at 80.3 per cent of the mines.

Dental Services

Dentists are seldom found in typical mining communities.

Contracts and Agreements

To protect the doctor-patient relationship one doctor negotiated separate written agreements with subscribers who authorized the proper pay roll deduction. Physicians furnishing medical care to miners on a pay roll checkoff basis enter into contracts with the company or the local union or both. More than 50 per cent of the agreements were verbal. Where there is a written contract, it is usually entered into between the doctor and the union with the approval of management.

Selection of Physician

In past years management assumed most of the responsibility for selecting a physician. Recently, however, unions have demanded a voice in the appointment of the doctor. Evidence of selection on basis of personal friendships and other non-medical considerations were found. Management may exert considerable influence on the selection by withholding company-owned office space or living quarters or refusal to make a pay roll deduction for transmittal to a physician whose selection it has not approved. Doctors with contracts under prepayment plans do, in some instances, exercise a voice in selection of additional physicians.

Financial Administration of Plans

Financial administration or supervision of the numerous plans under which prepaid medical services are provided is vested in varying degrees in management, local unions and physicians. Expressed statistically, 127 plans are considered to be controlled primarily by the contract physician, 14 are company sponsored in providing medical facilities and salaried physicians, 8 are controlled by the union and 5 are administered by a joint commission.

Labor's Concern in Medical Care

In recent years, problems associated with the administration of prepaid medical services have resulted in the interjection of certain pertinent provisions in the labor contracts between coal operators and the union.

Patients' Choice of Physician

Unless he wishes to pay extra to obtain the services of a doctor who is not associated with the prepayment plan, the miner must accept the services of the contract physician. In some places the contract physician is the only doctor available. Where two or more physicians are practicing at some mines or groups of mines, the participant in the plan is usually assigned to only one of them. If several of the independent prepayment plans could be grouped, the participants would then be enabled to have a choice of doctor, limited only by the size of the group. Furthermore, he would have a physician to call on in an emergency if the physician of his choice was away. Doctors likewise would be able to rotate their practice when desirable.

Facilities for Treatment

At only 17 of the 260 mines surveyed have the companies erected and equipped excellent dispensaries to be utilized for industrial medicine and ordinary medical care of miners and dependents. Generally the company doctors' offices are in small frame buildings for which management charges nominal rent. The equipment of such offices ranges from that carried in a practitioner's bag to that found in a modern up to date office with sanitary features and modern physical therapy equipment. These offices are equipped by the doctor rather than by the company. "It is axiomatic that the extent of utilization and value of medical care facilities . . . depends on the availability and competence of professional personnel. Conversely, it is also true that the availability of good doctors frequently depends on the existence in a community of suitable physical facilities."

Attitude Toward Prepayment

The quality of medical facilities at the mines, the limited choice of physicians, the ways in which physicians are selected and the exclusions under the prevailing prepayment plans have all given rise to dissatisfaction by management, by labor, by physicians and by patients. Although the groups acknowledge the need for improvements, the concept of a prepayment system for medical care is acceptable to all parties, and abandonment would not only be resisted but would be undesirable.

It is indisputable that many physicians have been attracted to unprepossessing areas by a guaranteed minimum income each month. This economic advantage is responsible in a large measure for the fact that mining communities are as well supplied with physicians as they are. Under any revision of the system, provision should be made for a subsidy, retainer or minimum salary or other suitable method of payment for physicians who are willing to practice in such relatively isolated localities, to which otherwise they might not be attracted.

"Many of the mine physicians participating in contract practice believe that prepayment by pay roll checkoff is essential to the provision of medical care in most mining communities."

There are many advantages to the miners inherent in any prepayment "insurance" system of medical care where the risk is spread over a large group of people. Economic burdens are lightened for the individual through the distribution of costs and the individual protected against large outlays of funds in times of medical emergency.

Most of the causes of dissatisfaction hindering operation will not be eliminated until prepayment funds are administered by a representative body so constituted as to be above suspicion of partiality to the mine operator, the physician, the union or the miner. The objective should be to provide maximum service to the individual patient at the lowest cost consistent with (*a*) adequate remuneration to physicians for services rendered, (*b*) expansion and improvement of medical facilities and (*c*) the furthering of medical science.

Improvement in the administration of medical prepayment plans will be accompanied by the formulation of equitable written contracts clearly defining privileges and limitations. The subscriber should know what he is buying with his prepayments. A desirable requisite is freedom of choice of physician from among all legally qualified doctors who desire to participate, physicians should be paid from a fund centrally administered by a nonprofit association on the basis of specific services performed, and, to prevent abuses, consideration should be given to proposals that the subscriber should pay some moderate portion of the first cost of each illness.

An urgent need exists for the medical profession in each of the coal mining states to develop, in cooperation with management and labor, actuarially sound prepayment plans which will furnish the maximum of medical service coverage at the lowest cost consistent with continued improvement of services and facilities and opportunity for future scientific progress.

The development of such plans by the medical profession with the United Mine Workers of America and mine operators would contribute to the solution of many health problems of the people in the bituminous coal mining industry.

HOSPITALIZATION

Although the practice of prepayment of hospitalization is firmly established in the bituminous coal industry, there is great variation among the local plans. This situation, however, is no different from that of other prepayment plans throughout the country. Prepayment plans sponsored by medical organizations, Blue Cross and private insurance companies differ throughout the country. Such differences are necessary to accommodate local needs and desires in the areas served.

The various agencies administering these plans and a brief description follow:

1. Hospital Administered Plans: These plans are administered by what are known as "list" or contract hospitals. These hospitals have agreed to render certain services to beneficiaries. Such services are paid for by a "checkoff" from each miner's pay. The deductions are remitted in total to the contracting hospitals.

2. Nonprofit Associations: In several areas there are agencies which are incorporated on a legal nonprofit basis for the purpose of providing hospitalization to subscribers. These agencies make agreements with "participating" hospitals whereby such hospitals agree to provide specified hospital services to beneficiaries.

3. Mutual Benefit Associations: These associations are normally formed by the employees. In many instances the benefits go beyond providing hospitalization to beneficiaries and include cash indemnities for burial expenses, for disabilities resulting from accidents or illnesses and for support of survivors in case of death.

4. Union Administered Plans: The survey teams found such plans in all areas, but they predominated in the West. Union plans are no more specific in their provisions regarding benefits to subscribers than are other plans.

5. Employer Administered Plans: These plans are administered solely by the employers, usually by means of making company owned or operated hospital facilities available to the beneficiaries.

6. Physician Administered Plans: Such plans do not differ materially from the hospital administered plans. In most instances the physicians administering these plans own the hospitals with which contracts have been made or they are members of the hospital staffs.

7. Hospital-Operator-Union Administered Plans: Only one such plan was observed in the survey. It is operated by a commission composed of representatives of the hospital, management and employees of coal companies. This was reported to be the outgrowth of one originally devised by the hospital to care for indigent patients and persons with low incomes.

8. Indemnity Plans: Seven per cent of the plans studied were indemnity type group insurance contracts carried with private insurance companies.

Recommendations on Medical and Hospital Plans

In establishing any broad system to provide comprehensive medical and hospital care for miners and their dependents, the

survey suggests that serious consideration be given to the following:

1. Plans should be administered on a sound actuarial basis.

2. Plans should cover as wide an area as is practicable and feasible.

3. Each subscriber should know exactly what he is paying for and to what he is entitled.

4. Eligibility to subscribe to prepayment plans should not be limited to a single occupational group.

5. Scope of plans should be broad enough to permit participation by employer, company officials and supervisory personnel.

6. Each plan should make sound provisions for continuing benefits during periods of cessation of the income of participants.

7. Subscribers should be permitted to continue to participate following termination or transfer of employment.

8. Subscribers should be allowed free choice among an adequate number of hospitals and physicians who are willing to participate.

9. Funds should be sufficient to assure an adequate panel of participating physicians.

10. The plan should allow maximum professional competition compatible with high quality and reasonable economy.

11. Plans should seek the endorsement of the medical profession.

12. Checks should be included within the plans to prevent unnecessary demands by malingering patients.

13. Administration should not result in domination or coercion of physicians.

14. Responsibility for maintaining standards of medical care should be retained by the medical profession.

15. Provisions should be made for adjudicating grievances that may arise in the administration of the plan.

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HOSPITAL FACILITIES

Included in the report is a survey of 153 hospitals closely associated with the bituminous coal industry. These institutions were studied from both a quantitative and a qualitative point of view, utilizing mainly such factors as size, distribution, ownership or control, surgical and obstetric facilities, x-ray and laboratory service and the availability of medical, nursing and technical personnel. Of the hospitals surveyed, 75 per cent had a capacity of less than 150 beds, indicating that most of the miners depend on small or medium size hospitals located close to their homes.

All the hospitals included in the report rendered the usual medical and surgical services, and all but two provided facilities for obstetric care. Although many hospitals were well organized and well equipped, a considerable number exhibited deficiencies in various departments, particularly in the areas where small hospitals predominated. In relation to surgery, for example, it was reported that 30 per cent of the hospitals did not have adequate facilities, but in this connection it should be noted that the standard of comparison had been placed at a minimum of two operating rooms for all hospitals below 150 beds. Sixteen per cent of the hospitals surveyed did not maintain separate delivery rooms, 40 per cent lacked a labor room, and approximately 10 per cent did not have a nursery for the segregation and care of newborn infants. Nearly all the hospitals, however, had facilities for x-ray and laboratory work.

The nationwide shortage of nursing personnel was also reflected in the hospitals of the coal areas, where over 60 per cent of the institutions failed to meet the established index of 2 beds per nurse. Laboratory technicians were not employed in 30 per cent of the small hospitals and in 10 per cent of the hospitals of medium size. It was also reported that 30 to 50 per cent of the hospitals did not list on their staff any physicians who specialized in surgery, internal medicine or obstetrics. A full evaluation of these services, however, would no doubt require a further study of the qualifications, training and experience of the individual staff physicians.

The report recommends that hospital facilities in the bituminous coal mining areas be increased in size and improved in quality, that multiple small hospitals be consolidated into nonprofit associations whenever possible so that they may benefit under the Hospital Survey and Construction Act, and that small hospitals which cannot be consolidated affiliate themselves with larger institutions or limit their services to special phases of hospital work. It was further urged that increased attention be given to the specialties, that young physicians be induced to enter the coal areas under conditions that will permit them to advance professionally and financially, that hospitals extend their attending privileges to local physicians, that standards of administration, facilities and practice be established in accordance with the principles set forth by the American Medical Association, the American Hospital Association and other agencies, and that hospitals be licensed and also inspected at regular intervals. It was likewise urged that the United Mine Workers of America together with coal operators aid in the development of leadership in the establishment and improvement of community hospital facilities under the Hospital Construction Act.

The report calls attention to deficiencies in hospital facilities and services and indicates that "such attitudes appear to be most prevalent where the present system of contract hospitalization—a system that stifles competition on the basis of quality of service—is dominant." It states further that, "in the interest of proper medical care, the medical profession should closely scrutinize the present methods of practice in the coal mining areas and make modifications wherever necessary to provide adequate diagnostic services and treatment facilities, and enough fully qualified physicians to handle the needs of the regions."

OFF-THE-JOB LIVING

In the survey, off-the-job living is considered to include all the things the individual chooses to do in his own time for gratification of the doing.

What an individual does in his own time has a great deal to do with shaping his personality and coloring his attitudes. "This is where recreation comes in, for recreation is a means of satisfying human hungers for self expression and creativeness, for belonging to the group and being wanted, and for recognition, competition and adventure."

The circumstances in many coal mining areas limit the activities of private and public agencies as well as those of commercial firms, some of these inhibiting circumstances being that (1) areas are sparsely settled, (2) working time and earnings of inhabitants are irregular and undependable, (3) the land is owned or leased by mine operators and not generally available for lease or purchase, (4) many communities are unincorporated and there are no public bodies to provide recreational opportunities for residents, and (5) the proper use of leisure time depends on leadership as well as on facilities and programs.

In a great measure the people in coal mining areas depend on four sources—management, labor, the school and the church—for their recreational activities.

Leadership is of vital necessity in stimulating the major interests of the people, and instances were discovered in which recreational facilities that had been provided and installed were deteriorating rapidly from nonuse. Lack of adequate and interested leadership was given as the cause.

Recreational facilities are in direct ratio with other facilities available in individual camps and communities. They are better and more readily available in the larger incorporated communities with diversified classes of people, poorer in incorporated communities comprising mining families and workers in professions and trades different on mining and poorest in company owned camps and unincorporated communities made up almost solely of mining people. "These facts point out that community organization is needed to provide the basic needs for recreational facilities and comprehensive leisure time programs."

CENTENNIAL BROADCASTS FROM ATLANTIC CITY

Here again the Bureau of Health Education announces the following broadcasts connected with the Centennial Celebration of the American Medical Association at Atlantic City:

Saturday, June 7, 4:30 p. m., Eastern Daylight Time, Columbia Broadcasting System and associated stations: "Science Service Program." R. L. Sensenich, Chairman of the Board of Trustees, guest speaker. Topic, "Medicine's Centennial Year."

Saturday, June 7. "Doctors—Then and Now," Nevada and Northern California, speaker Lawrence Parsons, M.D., representing Nevada and California Medical Associations; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

Saturday, June 7. "Generations of Doctors" (tentative title), a fantasy story of the doctor of 1847 in contrast with his descendant, a doctor of 1947, dramatized with music; Columbia Broadcasting System and affiliated stations, 10:30 to 11 p. m., Eastern Daylight Time.

Sunday, June 8. Speakers from the Centennial religious observance, Msgr. Fulton J. Sheen, Rabbi Joshua Loth Liebman and Dr. Ralph C. Hutchison, President of Lafayette College; N. B. C. and affiliated stations, 11 to 11:30 a. m., Eastern Daylight Time.

Monday, June 9. Official opening of the Scientific Exhibit, Dr. Morris Fishbein, Editor of The Journal, and Dr. Harrison H. Shoulders, President of the American Medical Association; American Broadcasting System and affiliated stations, 4:15 to 4:30 p. m., Eastern Daylight Time.

Monday, June 9. "Stephen Graham, Family Doctor": this Mutual network broadcast, usually originating from New York, will be originated from the American Room at the Hotel Traymore as the entertainment feature for the annual dinner tendered the House of Delegates and officers of the American Medical Association by the local medical profession. The entire production will be moved from New York as a demonstration to the delegates and as a special event commemorating the Centennial of the American Medical Association. The topic will be "Medical Service in Rural Areas." The special script will be written by Willys Cooper and produced by Wynn Wright. The program is under the general supervision of Dr. W. W. Bauer and Harriet Hester.

Wednesday, June 11. Address by Dr. Edward L. Bortz: Columbia Broadcasting System, 6:15 to 6:30 p. m., Eastern Daylight Time. Topic: "Looking Forward from A. M. A. Centennial."

Friday, June 13.—Interview: Dr. Edward L. Bortz, President of the American Medical Association; interviewed by Harriet Hester, Mutual Broadcasting System and affiliated stations, 10:30 to 10:45 a. m., Eastern Daylight Time. Topic: "One Hundred Years of American Medicine."

Saturday, June 14. "Doctors—Then and Now"; closing program of the series entitled "American Medical Cavalcade," summarized by Dr. W. W. Bauer; N. B. C. and affiliated stations, 4:30 to 5 p. m., Eastern Daylight Time.

In addition to the Monday night Mutual broadcast of the "Stephen Graham, Family Doctor" show, the speeches by Drs. Fishbein and Shoulders on the American Broadcasting System, and the speeches of Dr. Bortz on the Columbia Broadcasting System and the Mutual Broadcasting System will originate from Atlantic City; "Doctors—Then and Now" on N. B. C. will originate both Saturdays from Chicago; "Generations of Doctors" on C. B. S. will originate from New York.

Coming Medical Meetings

American Medical Association, Atlantic City, June 9-13. Dr. George F. Lull, 535 N. Dearborn St., Chicago 10, Secretary.

American College of Allergists, Atlantic City, Hotel Senator, June 6-8. Dr. Fred W. Wittich, 401 LaSalle Medical Bldg., Minneapolis 2, Secretary.

American College of Chest Physicians, Atlantic City, Ambassador Hotel, June 5-8. Mr. Murray Kornfeld, 360 N. Dearborn St., Chicago 10, Executive Secretary.

American College of Radiology, Atlantic City, Haddon Hall, June 7-8. Mr. Mac F. Cahal, 20 N. Wacker Drive, Chicago 6, Executive Secretary.

American Diabetes Association, Atlantic City, Chalfonte-Haddon Hall, June 7-8. Dr. Cecil Striker, 1019 Provident Bank Bldg., Cincinnati 2, Secretary.

American Medical Women's Association, Atlantic City, Hotel Claridge, June 7-8. Dr. Helen F. Schrack, 216 N. Fifth St., Camden, N. J., Secretary.

American Neisserian Medical Society, Atlantic City, Marlborough-Blenheim Hotel, June 8. Dr. William L. Fleming, 750 Harrison Ave., Boston, Secretary.

American Neurological Association, Atlantic City, Marlborough-Blenheim Hotel, June 16-18. Dr. Walter O. Klingman, 195 Ft. Washington Ave., New York 32, Secretary.

American Physiotherapy Association, Pacific Grove, Calif., July 6-12. Miss Mildred Elson, 1790 Broadway, New York 19, Secretary.

American Proctologic Society, Atlantic City, June 7-8. Dr. Harry E. Bacon, 2031 Locust St., Philadelphia 3, Secretary.

American Radium Society, Atlantic City, June 8. Dr. Hugh F. Hare, 605 Commonwealth Ave., Boston 15, Secretary.

American Society for the Study of Sterility, Atlantic City, Hotel Strand, June 7-8. Dr. John O. Haman, 490 Post St., San Francisco 2, Secretary.

American Society of Electroencephalography, Atlantic City, Marlborough-Blenheim Hotel, June 13-14. Dr. Robert S. Schwab, Massachusetts General Hospital, Boston 14, Secretary.

American Urological Association, Buffalo, N. Y., Hotel Statler, June 30-July 3. Dr. Thomas D. Moore, 899 Madison Ave., Memphis 3, Tenn., Secretary.

Idaho State Medical Association, Sun Valley, June 16-19. Dr. William B. Handford, Caldwell, Secretary.

Maine Medical Association, York Harbor, Marshall House, June 23-24. Dr. Frederick R. Carter, 142 High St., Portland 3, Secretary.

Minnesota State Medical Association, Duluth, June 30-July 2. Dr. B. B. Sousster, Lowry Medical Arts Bldg., St. Paul 2, Secretary.

Montana, Medical Association of, Missoula, June 26-28. Dr. H. T. Caraway, 115 N. 28th St., Billings, Secretary.

National Tuberculosis Association, San Francisco, June 16-19. Dr. F. D. Hopkins, 1790 Broadway, New York 19, Executive Secretary.

New Hampshire Medical Society, Portsmouth, Hotel Wentworth, June 19-20. Dr. Carleton R. Metcalf, 5 South State Street, Concord, Secretary.

South Dakota State Medical Association, Rapid City, May 31-June 3. Dr. Roland G. Mayer, 223½ S. Main St., Aberdeen, Secretary.

Wyoming State Medical Society, Sheridan, June 23-25. Dr. George E. Baker, 226 E. 2d St., Casper, Secretary.

Washington Letter

(From a Special Correspondent)

June 4, 1947.

Republicans Reject Truman Appeal for Action on Federal Health Insurance

Senator Robert Taft of Ohio, president of the Republican Policy Committee, announced that the Republican controlled Senate had no place on its 1947 legislative calendar for the "long and bitter battle" that would ensue if efforts were made to pass a federal health bill as advocated by President Truman. Mr. Taft added that the Labor Committee which he heads will hold hearings on health needs shortly, although a bill will not be taken up this year. He has already launched a bill to expand medical and dental care through federal aid to states. Republicans opposed the President's suggestion of a health and disability insurance program on the ground that it would involve nationalized medical service. Senator Murray, Democrat of Montana, co-author of the Murray-Wagner-Dingell bill, has since introduced a bill to carry out most of the suggestions made by President Truman in his message to Congress.

Senate Endorses Bill to Create Agency on Scientific Research

The Senate voted 79 to 8 for the creation of a new government agency, a National Science Foundation, to conduct basic research in biologic and other scientific fields. The measure has an uncertain fate in store in the House of Representatives. An amendment by Senator Magnuson, Democrat of Washington, was passed by a 42 to 41 vote with 5 Republicans joining 37 Democrats, providing for a $15,000 a year director, appointed by the President, to execute all foundation policies. Also passed was an amendment providing that 25 per cent of funds later appropriated are to be allocated to the states for distribution. The original bill would liquidate the Office of Scientific Research and Development as of June 30 and would absorb the National Roster of Scientific and Professional Personnel, now in the Labor Department.

Senate Votes Special Commissions on Remedies for Cancer and Heart Disease

In voting passage of the National Science Foundation bill the Senate also approved an amendment by voice vote authorizing the proposed foundation to set up cancer and heart disease commissions. Each commission would be asked to survey public and private research in the field and recommend research programs to be carried out through the foundation. In the House, Representative Dirksen, Republican of Illinois, has asked the House Appropriations Committee to give the Atomic Energy Commission $25,000,000 to fight cancer. He declared that it has been estimated that 17 million people now living will die of cancer.

Captain Nellie Jane DeWitt Heads Navy Nurse Corps

Navy Secretary Forrestal announced on the thirty-ninth anniversary of the Navy Nurse Corps the appointment of Capt. Nellie Jane DeWitt as new director of the corps.

Official Notes

QUESTIONNARIE TO MEDICAL OFFICERS

The analysis of the 26,000 replies to the 50,000 questionnaires sent by the Committee on National Emergency Medical Service to discharged medical officers has been completed in time for presentation to the House of Delegates at Atlantic City. A copy of this report of approximately thirty-five pages will be mailed to any discharged medical officer who requests a copy from the Bureau of Medical Economic Research, Chicago.

The analysis of the questionnaire on Medical Care of Civilians During World War II appeared in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION May 24, pp. 369-374, and an editorial appears on page 366.

Medical Legislation

MEDICAL BILLS IN CONGRESS

National Science Foundation

A bill providing for the establishment of a National Science Foundation, S. 526, has passed the Senate. In addition to providing for five divisions within the foundation, including a Division of Medical Research, the bill directs the foundation to establish (a) a special Commission on Cancer Research, (b) a special Commission on Heart and Intravascular Diseases and (c) such other special commissions as the foundation may from time to time deem necessary. Each special commission will have authority to make a full and adequate survey of research, both public and private, being carried on in its field, to formulate and recommend to the National Science Foundation an overall research program in its field and constantly to review the manner in which such programs are being carried out.

Army and Navy Medical Departments

The bill proposing to revise the Medical Department of the Army and the Medical Department of the Navy, H. R. 3215, has been reported to the House with the recommendation that it pass. This legislation, among other things, would establish in the Medical Departments of the Army and Navy a Medical Service Corps consisting of the pharmacy, Supply and Administrative Section, the Medical Allied Sciences Section, the Optometry Section and such other sections as the Secretary of War or the Secretary of Navy, as the case may be, may deem necessary.

Compulsory Sickness Insurance

President Truman on May 19 transmitted to the Congress a special message containing his recommendations for the development and enactment of national health and disability insurance programs. He recommended (1) adequate public health services, including an expanded maternal and child health program, (2) additional medical research and medical education, (3) more hospitals and more doctors in all areas of the country where they are needed, (4) insurance against the cost of medical care and (5) protection against loss of earnings during illness.

The day following the transmission of this special message, a new version of the Wagner-Murray-Dingell bill was introduced in the Senate as S. 1320 by Senators Murray, Wagner, Pepper, Chavez, Taylor and McGrath. Companion bills were introduced in the House by Representative Dingell as H. R. 3548 and by Representative Celler as H. R. 3579.

The 1947 version proposes to remove the administration of the legislation on a federal level from the United States Public Health Service and place it in a board of five persons established as a part of the Federal Security Agency. The members of this board, it is proposed, will be on a full time salary and three of them would be appointed by the President, one a physician, with the approval of the Senate. The Surgeon General of the United States Public Health Service and the Commissioner of Social Security will be the other two members, ex officio. Detailed provisions have been added in an effort to give recognition to voluntary plans, additional groups to be covered have been added and special provisions included for the supplying of services to rural areas. In broad outline, the new bill does not depart from the philosophy of the earlier bill and retains the compulsory features that characterized its predecessor.

Medical Research Agencies

A bill introduced by Representative Hand, New Jersey, as H. R. 3864 proposes to establish an independent agency of the government to be known as the Medical Research Agency to initiate, conduct and support scientific research with respect to the cause and cure of cancer, rheumatic fever, Bright's disease, diabetes, diseases of the heart and circulation, and other major diseases of mankind, and to investigate the cause and spread of contagious or infectious diseases, including malaria. To enable the agency to organize and to commence to carry out its powers and duties an appropriation of $5,000,000 will be authorized. Thereafter, such appropriations will be made available annually as the Congress may authorize.

Miscellaneous

H. R. 1714 has been reported to the House, proposing to exclude from the Classification Act and other laws relating to compensation and benefits of federal employees, student nurses, medical or dental interns, residents-in-training, student dietitians, student physical therapists and student occupational therapists, assigned or attached to a hospital, clinic or medical or dental laboratory operated by any department, agency or instrumentality of the federal government or by the District of Columbia and any other student-employees, assigned or attached to any such hospital, clinic or laboratory primarily for training purposes, who may be designated by the head of such department, agency or instrumentality, or by the Commissioners of the District of Columbia, as the case may be, with the approval of the Civil Service Commission.

A bill introduced by Representative LeCompte, Iowa, as H. R. 3218, would provide hospitalization for persons who (1) have served on active duty in time of peace in any branch of the armed forces of the United States and have been honorably discharged from such service; (2) are suffering from any disability, disease or defect and are, in the judgment of the Administrator of Veterans' Affairs, in need of hospitalization or domiciliary care; and (3) swear that they are unable to defray the expenses of the necessary hospitalization or domiciliary care.

In providing for additional tax reductions from gross income, a bill introduced by Representative Keating, New York, as H. R. 2850 would, among other things, permit the deduction of all necessary expenses incurred by professional persons "in taking required instructions in connection with his work."

A bill introduced by Representative Rogers, Massachusetts, by request, as H. R. 3599, would direct the Administrator of Veteran's Affairs to provide complete medical care for the widows and children of persons who died as a result of service in the armed forces of the United States in time of war.

H. R. 3336, introduced by Representative Brehm, Ohio, proposes that the Medical Department of the United States Army shall be reorganized so as to provide for greater autonomy of the dental service.

A bill introduced by Representative Morrison, Louisiana, as H. R. 3443 would amend existing law to eliminate the requirement that a veteran, in order to receive medical or hospital care for a non-service connected disability, must declare that he is financially unable to defray the expense of such care.

A bill introduced by Representative Buck, New York, as H. R. 3073 would provide medical advice and outpatient treatment by the United States Public Health Service to the widows and minor children of certain deceased personnel of the Regular Coast Guard and of the United States Coast Guard Reserve, of the United States Coast and Geodetic Survey and commissioned officers of the regular corps of the Public Health Service and of the Reserve Corps when on active duty or when retired for disability.

The Federal Food, Drug and Cosmetic Act would be amended by a bill introduced by Senator White, by request, as S. 1190, so as to provide for seizure of foods, drugs, devices and cosmetics which become adulterated or misbranded while held for sale *after* shipment in interstate commerce.

STATE LEGISLATION

California

Bills Introduced.—A. 2307 proposes that dogs and cats may be used for studies or investigations requiring the cutting, crushing or burning of tissues or the administration of drugs, biologicals or chemical products only in institutions or laboratories approved by the state department of public health. The proposal then authorizes the state department of public health to grant written approvals for such purposes to universities and colleges in the state maintaining medical, dental, veterinarian or agricultural schools or scientific research or experimental departments and to public or private laboratories that are licensed or approved by the National Institute of Health. The approval, when granted, would remain valid and in force and effect until surrendered. A. 2681, to amend the law relating to the practice of chiropractic, proposes to define chiropractic as consisting of "any or all acts essential to the application of chiropractic principles. Said acts are directed chiefly to the proposition of adjusting vertebral subluxations for the purpose of reducing obstructive pressure on nerves, where they lie in intervertebral foramina, or pressure on the spinal cord." The proposal would further define the terms "impingement, subluxation and adjustment" as follows: "impingement is the state of any nerve, or the tissues of the spinal cord or brain, on which there is sufficient pressure to obstruct the transmission of nervous energy. Subluxation is any relation of contiguous vertebrae, of the first cervical vertebra and the occipital bone, of the fifth lumbar vertebra and sacrum or of any osseous articulation in which nerves may be subjected to obstructive pressure. Chiropractic adjustment is the voluntary and specific reestablishment of proper vertebral relationship for the purpose of relieving obstructive pressure on spinal nerves or the spinal cord." S. 1059, to amend the law relating to offenses against the chapter on medicine and surgery, proposes that no person who does not hold at the time thereof an unrevoked and unsuspended certificate as a physician and surgeon shall make a postmortem examination or perform an autopsy on the remains of a deceased person.

Bills Enacted.—S. 333, which has become chapter 327 of the Laws of 1947, is a hospital survey and construction act requiring a state wide survey of hospital facilities and the formulating of a plan for the construction of additional needed facilities, as well as the establishment of an advisory hospital council. The survey is to be administered by the state department of public health, which department is appointed as the state agency to accept money received from the federal government for state assistance in either survey or construction programs. S. 1070, which has become chapter 309 of the Laws of 1947, amends the business and professions code by making it an act of unprofessional conduct for a practitioner to be convicted of a violation of the narcotic or dangerous drugs statutes of the state. S. 1071, which has become chapter 308 of the Laws of 1947, amends the business and professions code by making it an act of unprofessional conduct for a practitioner to administer to himself cocaine, opium, morphine, codeine, heroin, alpha eucaine, beta eucaine, chloral hydrate, paraldehyde or barbituric acid, any of the narcotics or alcoholic beverages to an extent which is injurious to his practice.

Colorado

Bill Enacted.—S. 534, which was approved May 16, 1947, amends the law relating to venereal diseases by providing, among other things, that no person other than a licensed physician shall treat or prescribe for a case of venereal disease. It also provides that no person shall sell or dispense a drug, medicine, remedy or preparation for the treatment, relief or cure of such a disease except on the original written prescription of a duly licensed physician, which prescription shall bear the name and address of the prescribing physician and the name of the municipality or health district in which the patient resides.

Connecticut

Bills Enacted.—H. 922, which has become public act 104 of the Acts of 1947, relating to the practice of naturopathy, suspends the provisions of the naturopathic practice act relating to licensure without examination until the adjournment of the 1947 session of the general assembly. S. 15, which has become Special Act 120 of the Acts of 1947, amends the charter of the Connecticut Medical Society by changing the name of the society from "The Connecticut State Medical Society" to "The Connecticut Medical Society" and by eliminating the limit of $100,000 on the value of real and personal estate which the society may purchase, receive, hold or convey.

Florida

Bill Introduced.—H. 312, to amend the law relating to the membership of the state board of health, proposes to authorize a person other than a doctor of medicine to be a member thereof, that is, "a licensed practitioner under the laws of the state of Florida of one of the healing arts for the treatment of human ills other than a doctor of medicine."

Bill Passed.—S. 710, which passed the senate May 21, proposes to authorize colleges in the state of Florida which are empowered to teach anatomy to obtain the bodies of unclaimed persons who die in the county poor farms and county hospitals for the purpose of medical, surgical or anatomic study or dissection.

Illinois

Bill Introduced.—S. 414 proposes the creation within the department of labor of a board of industrial hygiene and safety.

Michigan

Bill Introduced.—H. 466, relating to absences from school of children who are physically unable to attend, proposes to authorize the attendance officer to secure a written statement from a physician having the qualifications prescribed by the medical practice act or the osteopathic practice act certifying that such child is physically unable to attend school.

Bill Enacted.—H. 304, which has become public act 106 of the Acts of 1947, is a licensing law for privately owned hospitals, homes and institutions for the care and treatment of mentally diseased persons.

Minnesota

Bill Enacted.—S. 966, which has become chapter 340 of the Laws of 1947, provides, among other things, that no person shall act as a superintendent or administrative head of a hospital or sanatorium without first registering with the state board of health.

Ohio

Bill Introduced.—H. R. 75 proposes the creation of a committee to make inquiries and investigations into any and all matters pertaining to any of the state examining boards, including the medical examining board.

Bill Passed.—H. 295, which passed the house May 21, proposes to authorize the use in court of evidence of the amount of alcohol in a person's blood taken within two hours of the time after he is arrested as shown by a chemical analysis of his blood, urine, breath or saliva. This proposal would apply to the trial of any action or proceeding arising out of acts alleged to have been committed by any person arrested for operating a motor vehicle or motorcycle while in an intoxicated condition.

Oklahoma

Bill Enacted.—H. 278, which was approved May 22, 1947, makes it a misdemeanor for any person to use the word "doctor" or to hold himself out as qualifying to engage in the practice of any of the healing arts without holding an unrevoked license or certificate issued by the laws of the state authorizing the person to practice the healing art covered by the license.

Pennsylvania

Bills Introduced.—S. 745 proposes to exempt from taxation the properties of charitable hospitals whose entire revenue is applied to the support of the institutions. S. 746 proposes to require all pupils attending a public high school or a private school, all pupils attending a public or private elementary grade or high school, every student attending a state teacher's college and every faculty member and employee of every school district and state teachers' college to be given a standard chest x-ray examination for the presence or absence of tuberculosis at certain stated intervals.

South Carolina

Bill Enacted.—S. 236, which has become governor's act 547 of the Acts of 1947, proposes the establishment of a state cancer clinic.

Wisconsin

Bills Enacted.—A. 237, which was approved May 23, 1947, amends the law relating to chiropractic by defining a chiropractor as a person holding a license issued by the state board of examiners in chiropractic. S. 162, which has become chapter 132 of the Laws of 1947, requires all physicians to report immediately to the local health officer the name, age and address of every person diagnosed as afflicted with epilepsy or similar disorders characterized by lapses of consciousness.

GOVERNMENT SERVICES

ARMY

STRAIN ON PILOTS AND AIRCRAFT

The experience of army pilots flying the newest jet fighter planes indicates that, regardless of how well the aircraft are built, the human body is capable of greater strain for very brief periods than the aircraft. Such fighter craft are now being equipped with accelerometers to warn the pilots when a critical strain is being approached. The jet fighters are built to withstand successfully a force twelve times the force of gravity. This is much more than an airplane develops generally while performing acrobatics and much greater than a pilot would be able to stand for more than a few seconds. The accelerometers, however, have shown that in some instances pilots have pulled up to 14 g during acrobatics in rough air; the high speed jet aircraft can develop up to 7 g in turbulence. While these forces are dangerously high, the pilot is exposed to the high gravity force for less than one second and has experienced no ill effects. In the case of the jet fighter however, the exposure to any force greater than 12 g for even a part of a second damages the wings and fuselage. The accelerometer will enable the pilots to reduce the chances of such damage. A force of 1 g is equal to the pull of gravity. A force recorded as 4 g would be four times the force of gravity, and a pilot weighing 200 pounds would weigh 800 pounds when exposed to 4 g.

FLIGHT NURSES

Nine flight nurses, officers of the Army Nurse Corps, graduated from the School of Aviation Medicine, Randolph Field, Texas, May 16, after a five weeks course devoted to basic military medical and surgical subjects and to special consideration of the nursing of wounded during flight. During the last four weeks of the course actual air evacuation flights are used in on-the-job training.

TRANSLATION SERVICES DISCONTINUED

The Army Medical Library, Washington, D. C., as of May 1 discontinued all public translation functions of the library. While during the war the translating section rendered valuable services, demands for translations have lessened and the section can no longer be maintained as a separate unit. The personnel of the section will be detailed to the Index-Catalogue Division.

LIBRARY EVENING HOURS

Because of an increasing demand for evening hours the Army Medical Library, Washington, D. C., will remain open until 9 o'clock on Wednesday evenings but will no longer be open on Sunday mornings. The library closes at 5 p. m. on other days and is open Sundays from 1 to 5 p. m.

PROFESSIONAL STAFF PROGRAMS

The Army and Navy General Hospital, Hot Springs National Park, Ark., and Walter Reed General Hospital, Army Medical Center, Washington, D. C., have forwarded staff programs which outline for each day the professional activities at those institutions. These comprise in one or the other hospital clinical conferences, ward rounds, formal teaching ward rounds, seminars, case presentations and medical motion pictures.

NAVY

COMMENDS NAVAL DISASTER ACTIVITIES

The Surgeon General, Rear Admiral Clifford A. Swanson, has highly commended the naval activities in Texas for their contribution to Texas City and to the hospitals at Galveston at the time of the disaster. The medical personnel from the Naval Hospital at Houston, who were the first military organization to arrive at the scene of the explosion, some 46 miles distant, worked with the civilian doctors and first aid teams in the vicinity of the docks until the injured were evacuated and until the area became too dangerous for further work. The commanding officer of this hospital then made available 500 beds for the injured.

The medical group from Orange, Texas, flew directly to Galveston and reported to the John Sealy Hospital, formed a surgical team, were assigned a surgery, and worked through the night taking care of the injured. A second team from Orange formed a caravan and drove the 110 miles to Houston and worked at the Houston Naval Hospital, substituting there for the naval personnel who went to Texas City. The medical personnel from Dallas and Corpus Christi, who arrived by plane in the early afternoon, set up a first aid station at the Naval Air Field, Hitchcock, about 15 miles distant, and for forty-eight hours cared for more than 300 refugees and seriously injured.

On the afternoon of the explosion the medical officer in command of the Naval Hospital, Houston, Capt. Clyde W. Brunson, U.S.N., and Rear Admiral A. S. Merrill, commandant of the 8th Naval District, made a visit to Texas City and to all hospitals in Galveston and offered all available medical facilities. Later the Naval Hospital, Houston, became the headquarters for dispensing supplies in that area to both Texas City and Galveston, and the needed supplies were sent practically every hour, day and night. Casualties were also received at this station.

For this exceptionally meritorious work and for the long hours spent without rest in aiding the injured, the Surgeon General stated that he was exceptionally appreciative of the manner in which the personnel from these naval activities conducted themselves in this emergency and that their actions were in accordance with the highest tradition of the medical department of the naval service.

NAVY AWARDS AND COMMENDATIONS

Lieutenant Ralph D. Eichhorn

The Navy Commendation Ribbon has been awarded to Lieut. Ralph D. Eichhorn (MC), U.S.N.R., of New York, for excellent service in the line of his profession and duty as junior medical officer aboard the U. S. S. *Ormsby* (APA-49) from Feb. 1 to Nov. 15, 1944 during the amphibious assaults and capture of Kwajalein, Aitape, Guam, Peleliu and Leyte. The citation states that Lieutenant Eichhorn's exceptional leadership was a source of inspiration to medical department personnel. He demonstrated sound judgment, resourcefulness and high professional skill in meeting unique problems in surgery. During the assault on Guam he attended to the wounded continuously for seventy-two hours without rest and sleep and thus saved many lives. His conduct and accomplishments under hazardous combat conditions were in keeping with the highest traditions of the naval service. Dr. Eichhorn graduated from New York University College of Medicine in 1942 and entered the service Dec. 14, 1942.

PERSONAL

Captain O. L. Burton, chief, preventive medicine division, Bureau of Medicine and Surgery, returned from the fifth annual meeting of the United States-Mexico Border Public Health Association, held at Tijuana, Mexico, where he read a paper on venereal disease problems. This group reduced the venereal disease rate at the Mexican border areas and during the war solved public health problems by joint actions which were of concern to the two countries.

VETERANS ADMINISTRATION

CENTRAL LABORATORY ESTABLISHED

The Veterans Administration announces the establishment of a central laboratory for pathology in Washington, D. C., in cooperation with the Army Institute of Pathology, to provide a consultation, review and diagnostic service in pathologic tissues for the 126 hospitals and other medical facilities of the Veterans Administration. In addition, Veterans Administration pathologists will cooperate with the Army, civilian medical societies and others in maintaining a central file of pathologic anatomy and related records for reference, research, training and long-range follow-up programs. The joint laboratory will also provide instruction in pathologic anatomy and histopathologic technics for Veterans Administration pathologists and technicians within the limits of available facilities, conduct research in the pathology of diseases, cooperate with similar research programs of the Army Institute of Pathology and provide study and review material in the form of study sets, atlases and clinicopathologic conferences. It is planned that branch reference laboratories, to be established in thirteen branch offices of the Veterans Administration, will later maintain consultation and training services in pathology for Veterans Administration hospitals and other medical facilities within their respective areas.

NEUROSURGERY CENTERS

Veterans in need of surgery of the nervous system now are sent to forty-one specially equipped and staffed hospital centers operated by the Veterans Administration or under contract. Thirty-seven of these centers are in Veterans Administration hospitals. Eligible veterans may also be treated in navy hospitals at Philadelphia, at Houston, Texas, in the Army's Fitzsimons General Hospital, Denver, or in the Maine General Hospital, Portland. Each of the forty-one centers has special equipment, neurosurgeons and other skilled personnel necessary to perform all types of neurosurgical operations.

NEW CONCEPT OF NURSING PRACTICES

The Veterans Administration nursing service is pioneering in a new concept of nursing practices to give American veterans the best possible care. The announcement was made by Miss Dorothy V. Wheeler, director of the Veterans Administration's nursing service, after the major changes had been approved by Dr. Paul R. Hawley, chief medical director. The four major shifts in policy include (1) creation of professional standards boards to evaluate qualifications for appointment to the nursing service, just as physician boards now evaluate the qualifications for doctors; (2) new regulations revising the promotion of nurses so that the more proficient may be promoted to positions in line with their abilities; (3) establishment of a rotation policy transferring nurses in isolated Veterans Administration hospitals to hospitals with teaching units so they may keep abreast of the latest professional technic; (4) complete revision of nursing policies to increase the degree of nursing care given each veteran patient.

EXERCISE FOR PARALYZED VETERANS

Veterans paralyzed from the waist down now can play table tennis with ease from wheel chairs in Veterans Administration hospitals as a result of a specially built table designed for their use. The table is standard except for sideboards 30 inches high that extend above the playing surface and prevent the ball from glancing off the table. Two changes in the rules have been made to fit the needs of these players. The first provides that a serve may not strike the sideboard before it crosses the net; the other change involves a ball hitting the sideboard and then going off the table before it bounces on the table. This shot is scored against the player making it. These tables and other arrangements for athletic activities for paralyzed veterans not only entertain patients but provide an adjunct to their treatment in veterans' hospitals.

PROPOSED HOSPITAL AT HOUSTON, TEXAS

Construction is expected to get under way soon on the veterans' hospital to be located on a 209 acre tract a short distance from the Texas Medical Center and the new navy hospital in Houston, Texas. The twenty-five hospital buildings, costing around fifteen million dollars, will provide care for veterans in all branches of medicine, convalescence and rehabilitation. The hospital will be equipped for medical research also. Great emphasis will be placed in the planning on mental and spiritual restoration for veterans and for vocational instruction. In addition to a wide variety of facilities for athletics, physical development, training in manual art and many branches of education there will be an experimental farm for teaching rehabilitated veterans modern methods of agriculture.

PERSONAL

Dr. Edwin J. Euphrat, chief, radiologic service, U. S. Veterans' Hospital, Aspinwall, Pa., has returned to Elkins, W. Va., and accepted appointment as chief, department of radiology, Davis Memorial Hospital, Elkins.

Dr. Seldon R. Hoover, Charlestown, W. Va., has accepted appointment as urologist at the Veterans Administration office in Huntington, W. Va.

MISCELLANEOUS

SALE OF SURPLUS GOVERNMENT PROPERTY

The War Assets Administration is conducting sales of surplus government property announced by the following regional offices. Physicians who are veterans have certain priorities in the purchase of this government property.

Regional Office, 600 Washington Street, Boston 11. Sale of miscellaneous medical equipment. Sale closes June 12.

Regional Office, 95th and Troost, Kansas City, Mo. Sale of laboratory supplies and equipment, hospital equipment and supplies, one lot of surgical instruments and supplies, one lot of surgical chemicals, one lot of orthopedic accessories, one lot of restraint apparatus, one lot of splints and splint accessories. Sale closes June 18.

Regional Office, 412 West Market Street, Louisville, Ky. Sale of surgical supplies and of a large quantity of synthetic rubber gloves at 9 cents a pair. Sale opens June 6 and will be continuous.

SALE OF ANESTHETIC AGENTS

The War Assets Administration is offering $220,000 worth of government surplus anesthetic agents in a fixed price sale. The offering will be concurrent to priority claimants and other buyers until June 12, with orders being filled in the usual priority sequence. The offering includes evipal soluble powder in 1 gram ampules ranging in price per package of ten ampules from $3 to wholesalers and exporters to $3.60 to small retailers; avertin solution in 100 cc. bottles priced at from $6 to $7.20 to the various levels of trade; spinocaine solution in boxes of ten 2 cc. ampules priced at from $1 to $1.25 each, and procaine hydrochloride in boxes of ten ampules of 100, 120 and 150 mg. each at prices ranging from 30 cents to 36 cents a box. All prices are f. o. b. location. The surplus avertin solution is located in both the St. Louis and Louisville W. A. A. regions and the other items are located only in the Louisville region. Orders should be sent in duplicate to the W. A. A. region having the desired products. Brochures containing complete price listings and other details of the offering will be available at W. A. A. regional offices and customer service centers.

Medical News

(Physicians will confer a favor by sending for this department items of news of general interest: such as rebuts to society activities, new hospitals, education and public health. Programs should be received at least two weeks before the date of meeting.)

ALABAMA

Dr. Noland Honored.—At a reunion of the medical staff of the Employees Hospital (Fairfield) of the Tennessee Coal, Iron & Railroad Company in Birmingham, May 16, more than half of the 248 interns who have worked with Dr. Lloyd Noland, Birmingham, at the hospital returned to pay him honor on completion of thirty-four years' service with the company. Part of the ceremony was in the nature of a surprise party in that Dr. Noland's six brothers and sisters, who had not been together for many years, were present. A book was presented to him, also as a surprise, containing a list of the interns and staff members with whom he had served throughout the years, and a number of medical papers published for the first time by eminent authorities. The book, which also contained a biography, had been prepared by a committee headed by Drs. E. Bryce Robinson Jr., Hillary H. Henderson Jr., Wallace A. Clyde and Russell G. Hightower, all of Fairfield. Dr. Noland came to Birmingham from the Panama Canal Zone, where he had been an assistant to General William C. Gorgas. He founded the three and half million dollar Tennessee Coal and Iron hospital. His experience in the tropics has enabled him to reduce greatly the number of cases of malaria among the company's employees.

CALIFORNIA

Physicians' Hobby Show Revived.—The Alameda County Medical Association plans to revive its hobby show, discontinued during the war, next fall. The society claims it was one of the first counties in the West to sponsor a show displaying hobbies of physicians. Doctors' Hobbies, Inc., was formed in 1940.

Narcotic Violation.—Dr. Paul O. Meyer, 327 Beloit Avenue West Los Angeles, was charged with prescribing narcotics to an addict or person representing himself as such and on February 17 was sentenced to serve six months in the county jail of Los Angeles County on a guilty plea to misdemeanor charges of issuing false prescriptions. The jail sentence was suspended and the doctor was granted probation for two years provided he pay a fine of $500 to the probation department.

Poisonous Mussels.—The annual quarantine order of the state department of health forbidding the gathering of mussels from ocean and bay waters in California became effective May 1 and will extend to October 31. The quarantine extends from Oregon to the Mexican boundary. During the summer months, cases of death among those who violate the order are usually reported to the state department of public health each year. In 1946, 3 cases and 1 death were reported from San Mateo County. Since 1927 there have been 345 cases and 24 deaths reported.

CONNECTICUT

Central Medical Association Centennial.—The Central Medical Association observed its centennial, April 9, at a meeting in Essex. The guest speaker was Dr. Morris Fishbein, Chicago, editor of THE JOURNAL, who discussed "The Motivation of the American Medical Association." Dr. James Murphy, Middletown, was presented a gold pen and pencil set in honor of his fifty-two years in the practice of medicine. Dr. Murphy related incidents in the practices of some of the early members. An interesting feature was an exhibit of excerpts from the old records of the association. The Middlesex County Medical Association held its annual meeting in conjunction with the Central Medical Association.

Dr. Bayne-Jones to Head Medical Center.—Dr. Stanhope Bayne-Jones, professor of bacteriology, Yale University School of Medicine, New Haven, and director of the board of scientific advisers, Jane Coffin Childs Memorial Fund for Medical Research, has been appointed president of the Joint Administrative Board of the New York Hospital-Cornell Medical Center. Dr. Bayne-Jones was dean of the Yale School of Medicine from 1935 to 1940. A veteran of both world wars, he was deputy chief, preventive medicine service, in the Office of the Surgeon General and director of the United States Typhus Commission from 1942 to 1946. Separated with the rank of brigadier general, he is still medical consultant to the Army Epidemiologic Board, Army Research and Development Board. Dr. Bayne-Jones was awarded the Charles V. Chapin Medal by the city of Providence, R. I., in recognition of his achievements in the control of typhus. The presentation took place at the 136th annual meeting of the Rhode Island Medical Society, May 14-15.

FLORIDA

State Medical Election.—At the meeting of the Florida Medical Association, April 21-23, Drs. William C. Thomas, Gainesville, was installed as president; Joseph S. Stewart, Miami, was named president-elect; Frank W. Hewlett, Miami, Frank D. Gray, Orlando, and Bricey M. Rhodes, Tallahassee, first, second and third vice presidents respectively, and Robert B. McIver, Jacksonville, secretary-treasurer. Nearly 1,000 members attended the three day convention.

ILLINOIS

State Medical Election.—At the annual meeting of the Illinois State Medical Society, Chicago, May 12-14, Dr. Irving H. Neece, Decatur, was installed as president and Dr. Percy I. Hopkins, Chicago, was chosen president-elect. Drs. H. Kenneth Scatliff, Chicago, and Walter E. Kittler, Rochelle, were chosen first and second vice presidents respectively. The council of the society authorized holding twelve postgraduate conferences in its eleven councilor districts 1947-1948. The next annual meeting was tentatively set for May 10-12 at the Palmer House, Chicago.

Chicago

University of Illinois Banquet.—An informal Alumni-Faculty-Student banquet will be held by the University of Illinois College of Medicine June 19 at the Furniture Club, 666 North Lake Shore Drive, at 6 p. m. Nonfaculty alumni should make reservations with Dr. Michael H. Streicher, secretary, 1853 West Polk Street. Guests are invited. Cost per plate is $5. Class reunions will be held for the years 1897, 1902, 1907, 1912, 1917, 1922, 1927 and 1937.

Committee to Publish Chicago-Cook County Health Survey.—In view of the public interest in the Chicago-Cook County Health Survey and the many requests for copies of the report, the advisory committee has decided to publish a nontechnical summary of the report. The booklet, about 40,000 words in length, will include a summary of the recommendations for the survey as a whole and a summary of the findings for each of the forty sections of the report.

Personal.—The Illinois Public Health Association April 19 elected Dr. Edward A. Piszczek, Chicago-Cook County health officer, as president.——Dr. Frode Jensen, member of the staff of the Council on Medical Education and Hospitals of the American Medical Association, has resigned to accept a position as director and coordinator of graduate and postgraduate medical education, University of Colorado School of Medicine, Denver, where he will also be an assistant professor of medicine in the department of internal medicine. He will be succeeded by Dr. William R. Albus, formerly of Washington, D. C., and recently of Chicago.

KANSAS

Logan Clendening Memorial.—A fountain in a court yard of the University of Kansas Hospitals, Kansas City, was dedicated to the memory of Dr. Logan Clendening at services April 20. Dr. Clendening, who died Jan. 31, 1945, was a widely known member of the faculty of the University of Kansas School of Medicine, Kansas City. He came to the university in 1910 as an instructor in the department of internal medicine and had served as professor of the history of medicine for many years.

KENTUCKY

Rehabilitation Center to Open in Louisville.—The Kentucky Society for Crippled Children will open a curative workshop for children and adults in Louisville within the next few months. This rehabilitation center is designed to assist the orthopedic handicapped patient to obtain maximum use of the injured part and to help him resume his normal place in the community. The types of treatment will be physical and occupational therapy. All treatment will be given only on medical recommendation. A committee has been appointed by the Jefferson County Medical Society to advise and cooperate with the local workshop committee. The types of cases will include

persons suffering from fractures, cut tendons and amputations and persons suffering from infantile paralysis and cerebral palsy, as well as other handicapping disabilities. At present there is no such restoration center in Kentucky.

LOUISIANA

Eye Bank in New Orleans.—An eye bank which will serve as a branch of the Eye Bank for Sight Restoration, Inc., in New York is to be established in New Orleans, Mrs. Henry Breckinridge, director of the New York eye bank, has announced. The bank will be housed in the new wing of the Eye, Ear, Nose and Throat Hospital, but until it is constructed the bank will be located in the Tulane Medical School building.

Louisiana-Mississippi Ophthalmological and Otolaryngological Society.—This society held its annual meeting at Biloxi, Miss., on May 5. Among the speakers were Dr. Samuel Fomon, New York, "The Rhinoplastic Operation and the Restoration of Nasal Function"; Dr. Peter C. Kronfeld, Chicago, "Newer Trends in the Treatment of Ocular Diseases"; Dr. Henry L. Williams, Rochester, Minn., "Ménière's Disease," and Dr. Ralph Bowen, Houston, Texas, "Allergic Problems Seen by the Ophthalmologist and Otolaryngologist." Dr. Noel Simmons, Alexandria, La., was elected president, and Dr. Edley H. Jones, Vicksburg, Miss., was relected secretary. The 1948 convention will be held in New Orleans.

MAINE

State Medical Meeting.—The ninety-third annual session of the Maine Medical Association will be held at the Marshall House, York Harbor, June 22-24 under the presidency of Dr. John O. Piper, Waterville. Conferences have been planned for Monday and Tuesday on spinal anesthesia, deafness, metabolic diseases, sterility, allergy, the eye, urology, pediatrics and orthopedics. A symposium on gallbladder disease is scheduled for Tuesday morning. Among the speakers at the scientific sessions are:

Dr. Garfield G. Duncan, Philadelphia, Treatment of Acute Complications of Diabetes.
Dr. Richard B. Cattell, Boston, Management of Obstructive Jaundice.
George L. Mabby, Portland, The Problem of the Ruptured Intervertebral Disk.
Dr. Edwin B. Astwood, Boston, Propylthiouracil.
Dr. Richard H. Sweet, Boston, Diagnosis and Treatment of Mediastinal Tumors.

At the dinner Monday evening at 7 o'clock Dr. Winthrop Adams, Bedford, Mass., will speak on "Medical and Hospital Care of Veterans under Veterans Administration." Other speakers include Dr. Abraham Colmes, Boston, "Food Allergy," and Dr. Edward S. O'Keefe, Lynn, Mass., "Pediatric Allergy." The annual meeting of the Maine Medico-Legal Society will be held Tuesday morning at 9:30. Drs. LeMoyne Snyder, Lansing, Mich., and A. Warren Stearns, Billerica, Mass., will be the speakers.

MASSACHUSETTS

The Boston Eye Bank.—An affiliated "eye bank" has been organized in Boston and is ready to serve the needs of New England, it was announced at the national headquarters of the Eye Bank for Sight Restoration, Inc., New York, which is celebrating its second anniversary. The organization marked its first anniversary last year by announcing an affiliated eye bank in Chicago at Mercy Hospital. The Boston Eye Bank is located in the Massachusetts Eye & Ear Infirmary building at 243 Charles Street. Seven hospitals in the Boston area and one in Maine have already become affiliated with it. The public in New England is being urged to sign forms, available from the Boston Eye Bank, indicating their willingness to donate their eyes for use after death. Henry Hixon Meyer, William S. Ballard and Dr. Edwin B. Dunphy, Boston, constitute the executive committee of the Boston Eye Bank's Board of Sponsors. The board includes leading ophthalmologists throughout New England, business, industrial and religious leaders and representatives of the eye departments of various hospitals.

MICHIGAN

Health Examination for Bartenders.—The Michigan Liquor Control Commission has adopted a law which requires that bartenders, who must renew their licenses each year, must obtain a certificate of health signed by a physician and an officer of the board of health. The certificate must show that the applicant is not affected with any infectious or communicable disease.

Evaluation of Local Health Departments.—The fifty-eight local health departments of Michigan are now completing evaluation of their services on the basis of standards set up by the American Public Health Association. After reports have been submitted to the Michigan Department of Health, where they are graded by the field staff of the Michigan Public Health Association, and follow-up visits by the state department have been made, plans for immediate and long range programs with local health departments will be instituted.

Dr. Baker Wins Russel Award.—Burton L. Baker, Ph.D., assistant professor of anatomy at the University of Michigan Medical School, Ann Arbor, received the annual Henry Russel Award at a ceremony May 8 in Ann Arbor. Mr. Baker, the twenty-second recipient of the Henry Russel Award for achievements in scholarly activity and a promising future, was selected for his research work dealing with the microscopic structure and internal chemistry of cells, especially in relation to their secretory activity. His investigations have centered about the endocrine glands that regulate the physiology of reproduction. Mr. Baker received his Master of Science degree in 1935 from Kansas State College and a Doctor of Philosophy degree in anatomy in 1941 from Columbia University College of Physicians and Surgeons, which he served from 1936 to 1938 as an instructor in anatomy.

Marquette Honors Admiral Swanson.—The Surgeon General of the Navy, Rear Admiral Clifford A. Swanson, was guest of honor at a three day "homecoming" at Marquette recently. Admiral Swanson was born and educated in Michigan. The city's chamber of commerce climaxed the celebration with a dinner attended by about 400 of the city's notables and their guests. Admiral Swanson addressed the dinner group on "Medicine in Action," pointing out the importance of medical service to the naval and military forces in winning a war and maintaining peace. Admiral Swanson was accompanied by Mrs. Swanson and his aide, Lieutenant Commander Arthur H. Nelson, U. S. Navy. Following the dinner he presented to the city a Bureau of Medicine and Surgery plaque which was inscribed "A certificate of appreciation to the city of Marquette, Michigan, in grateful acknowledgment for services rendered to the Medical Department of the Navy in World War II."

NEW YORK

Appointed Director of Association.—Dr. Herbert R. Edwards, New York, director of the Bureau of Tuberculosis, New York City Department of Health, has been appointed executive director of the New York Tuberculosis and Health Association to succeed Dr. Frank Kiernan on his retirement September 1.

New York City

Gift of $250,000 to Cancer Fund.—A check for $250,000 from the Damon Runyon Memorial Fund was presented to the American Cancer Society recently as "a first instalment only" toward cancer research. Brig. Gen. John R. Kilpatrick, chairman of the New York Cancer Committee's 1947 drive, said that part of the sum would be used to establish a pavilion in memory of Mr. Runyon in Memorial Hospital for the Treatment of Cancer and Allied Diseases. A large part of the gift will go for the care of newspapermen stricken with cancer.

Physicians Honor Sisters for Cancer Work.—At the fifteenth anniversary of the founding of their first cancer clinic Dr. Elise Strang L'Esperance and her sister Miss Mary Strang were honored for their work in cancer prevention at the New York Infirmary May 18. More than one hundred and fifty physicians attended. A scroll was presented to them by Dr. Ruth M. Bakwin, chairman of the medical board of the infirmary. Dr. George Baehr, president, New York Academy of Medicine, described how the impact of their interest in cancer prevention had spread widely. The sisters' first clinic at the infirmary, which was started in honor of their mother, became known as the Kate Depew Strang Cancer Clinic.

Library Donated for Jewish Doctors in Europe.—The New York Academy of Medicine has donated twelve thousand textbooks and medical journals to the book campaign of the Supplies for Overseas Survivors collection of the Joint Distribution Committee. This library will be sent to Jewish doctors and other professionals in Europe whose personal libraries were looted and destroyed by the Nazis. Selection of this material from the storehouse of the Academy of Medicine was supervised by Dr. Archibald Mallock, librarian of the New York Academy of Medicine, and Miss Libby Vernon, head of the storehouse division. The books and journals, printed chiefly in English, French, German, Russian and Yiddish, contain information pertinent to the treatment of tuberculosis, anemia and other diseases prevalent in postwar Europe. In addition to medical books and journals the Supplies for Overseas Survivors book campaign seeks fiction, poetry and other cultural reading material. Picture books for children have also

been requested overseas. The Supplies for Overseas Survivors collection is a project of the Joint Distribution Committee in cooperation with sixteen national Jewish women's organizations and other groups.

OHIO

Smallpox in Fostoria.—Vaccinations were ordered by health officials of Fostoria following the death of a 73 year old Mexican who came to Fostoria early in May from Savina, Mexico, with a truckload of other Mexican workers who are scattered over northwest Ohio. Vaccine was rushed to the city from Toledo, Columbus, Detroit and New York.

Research on Toxins and Toxoids.—Western Reserve University School of Medicine, Cleveland, has received $31,000 from the Lederle Laboratories to support research on bacterial toxins and toxoids, bringing the total given by Lederle to $46,000 in the last two years. Work under the direction of Louis Pillemer, Ph.D., associate professor of immunochemistry, has produced two purified toxoids, those of tetanus and diphtheria. The toxoids produced by Dr. Pillemer and his staff, it is claimed, have been found to be many times purer than the toxoids formerly used.

OKLAHOMA

Physicians Aid Tornado Stricken Woodward.—When news of the tornado that devastated the city of Woodward April 9 reached the executive secretary of the State Medical Association at 12:15 a. m., he immediately contacted doctors and nurses from nearby communities, who made up the first rescue party. Eleven private and four army physicians and nine nurses and technicians who assembled at the Highway Patrol headquarters were flown to Woodward through the cooperation of the Army Air Forces at Tinker Field. The plane, also carrying medical supplies secured from the state health department, the Red Cross and the Station Hospital at Tinker Field, departed at 2:45 a. m. and was met at Gage air field by citizens from both Shattuck and Woodward. The doctors, nurses and technicians and medical supplies were divided between these two towns. The personnel remained on duty until late the following day, when additional medical assistance arrived. Meanwhile senior medical students, interns and residents from Oklahoma City rendered valuable assistance. The next morning doctors came from as far away as Wichita, Kan., and Amarillo, Texas, and from many cities of the surrounding areas. The seriously wounded were evacuated by air to Oklahoma City hospitals. Patients were evacuated to the hospital at Alva by train, and the more seriously injured were transported to Community Hospital at Mooreland and a temporary hospital set up at the Baker Hotel, Woodward. No fuel or water until the following morning made emergency care and operative procedures at Woodward almost impossible. The public health department moved in at once to supervise and protect the people from epidemics occasioned by breaking of water and sewage mains. As late as the third day it was still necessary to take medical care into the area, for some of the injured were in too serious a condition to be evacuated. Of the 74 persons, including children, evacuated to University Hospital, Oklahoma City, only four fatalities resulted. At the hospitals long-stay cases were diffused so those less injured could be cared for as quickly as possible and normal services of the hospitals could be resumed. Hundreds of persons in Woodward had injuries that were not emergencies but which required care, and, as late as twenty-four hours after the tornado, people reported for aid with minor fractures, exhaustion and hysteria. Pebbles and splinters were driven into their skin and bodies. The catastrophe showed the definite need for establishing statewide disaster planning, as there was little coordination of available facilities. Medical supplies were scarce. Although long lines of people waited to give blood, there was insufficient equipment to give transfusions.

PENNSYLVANIA

Centenaries in Pennsylvania.—Two medical organizations are celebrating or approaching celebration of their one hundredth anniversaries this year. The Montgomery County Medical Society has been in existence one hundred years, and on May 10 Mercy Hospital of Pittsburgh completed one hundred years of service as a general hospital to the people of the tri-state area. In 1948 the Lycoming County Medical Society and the Medical Society of the State of Pennsylvania will observe their centennials.

State Society Plans Graduate Courses.—Plans for a statewide graduate course in medicine to be taken to the general practitioners in rural areas by traveling teams of lecturers have been endorsed by the board of trustees of the Medical Society of the State of Pennsylvania. Six teaching centers have been selected where seminars on the fundamentals of medicine will be given one day a week for ten weeks beginning in the fall: Allentown, Harrisburg, Johnstown, Oil City, Wilkes-Barre and Williamsport. Headed by Dr. Charles W. Smith, Harrisburg, the committee on graduate education includes the deans of the six medical colleges of Pennsylvania and officers of the state society. An advisory committee of medical leaders from Pittsburgh, Philadelphia and Harrisburg met in Philadelphia and formulated plans May 15. The lecturing teams will consist of four men. The schedule has been so arranged that lecturers from the five medical colleges in Philadelphia will cover the central and eastern sections of the state and those from the University of Pittsburgh School of Medicine will assume most of the teaching of the western centers. The state society believes its program is the largest statewide postgraduate education program scheduled in this country, although state medical societies in Wisconsin, Michigan, New York and other states have postgraduate training programs.

Philadelphia

Mine Workers Fund for Occupational Diseases.—Jefferson Medical College of Philadelphia has announced establishment there of a fund of $575,000 by the United Mine Workers of America for research and treatment of occupational diseases found among anthracite coal workers. Known as the Anthracite Health and Welfare Fund Foundation, it will finance treatment, care and rehabilitation, and research into the nature and prevention of silicosis and safety measures looking toward prevention of the disease. The gift enables the hospital to expand work that has been under way for years. The fund will contribute to the operation of a program that will include instruction of medical students, interns and resident physicians in the problems of silicosis; cooperation of the alumni of Jefferson Medical College of Philadelphia practicing in the anthracite coal regions; cooperation with physicians in the coal regions and elsewhere to facilitate the study and care of their patients, and the dissemination of scientific reports and medical papers.

WEST VIRGINIA

Lifetime Members of State Association.—The following doctors have been elected by the council as honorary lifetime members of the West Virginia State Medical Association: Edward Davis, Salem (Harrison); William T. McClellan, Ethel (Logan); Thomas C. Smith, Slagle (Logan); George R. Miller, Fairview (Marion); Robert A. Ashworth, Benjamin F. Bone, Orra F. Covert and Joseph A. Striebich, all of Moundsville (Marshall); Richard V. Shanklin, Bluefield (Mercer); Donald M. Post, Lawrence, Ind. (Monongalia); Paul C. Spangler (Morgantown, N. C. (McDowell); Frank D. Fortney, Beckley (Preston); Elmer E. Watson, Kingwood (Preston), and Francis E. Martin, New Martinsville (Wetzel).

County Health Bureau Director.—Dr. Alexander Witcow, city-county health commissioner, Delaware, Ohio, has been appointed by Dr. Newman H. Dyer, Charleston, W. Va., state health commissioner, as director of the bureau of county health work, to succeed Dr. Norman G. Angstadt, who resigned to accept appointment as director of the department of medical supervision of the school district of Reading, Pa. Dr. Witcow is a graduate of the New York University College of Medicine and received his master's degree in public health at Yale University, New Haven. Prior to going to Delaware he served as director of the health department of Menominee County, Mich., and afterward as director of the Dickinson County (Mich.) health department.

WISCONSIN

Wisconsin Surgical Society.—At the semiannual meeting of the Wisconsin Surgical Society, Madison, May 15, Dr. Claude Dixon, Rochester, Minn., addressed the society on "Anterior Resection of Lesions of the Lower Sigmoid and Rectum." The day's program consisted of morning operative clinics at the Wisconsin General and Methodist hospitals, case presentations and papers by members of the Jackson Clinic at the Methodist Hospital in the afternoon and a dinner meeting at which addresses were given by Dr. Russell M. Kurten, Racine, and the guest presentation by Dr. Dixon. Newly elected officers are Drs. Kurten, Racine, president; Erwin R. Schmidt, Madison, president-elect; Warner S. Bump, Rhinelander, secretary-treasurer; Frank D. Weeks, Ashland, recorder. Newly elected members of the council are Drs. Joseph W. Gale, Madison, and Peter A. Midelfart, Eau Claire. A combined meeting with the Chicago Surgical Society is being planned for October in Chicago.

GENERAL

Societies for Experimental Biology.—About one thousand papers were presented before the various meetings May 19-23 in Chicago of the Federation of American Societies for Experimental Biology. The federation is composed of the American Physiological Society, American Society for Biological Chemists, the American Society for Pharmacology and Experimental Therapeutics, the American Society for Experimental Pathology, American Institute of Nutrition and the Association of Immunologists.

Electroencephalographers' Meeting.—The annual meeting of the Eastern Association of Electroencephalographers was held May 24 at the New York Hospital, New York. Following an inspection of laboratories, Wladimir T. Liberson, Hartford, Conn., spoke on "Place of Electroencephalography in the Psychiatric Hospital," and Dr. Margaret A. Kennard, New York City, "The Electroencephalogram in Behavior Problems." During the afternoon Dr. Donald J. Simons, New York, discussed "Electroencephalography in Psychopathic Personalities."

Biological Photographic Exhibition.—An international exhibition of biological photography will be held September 10-27 in Rochester, N. Y., in conjunction with the convention of the Biological Photographic Association. The committee desires to include all photographic technics in the preparation of black and white and color, still and motion picture photographic material. Entry blanks for contributors may be secured from Mr. H. Lou Gibson, 343 State Street, Rochester 4, N. Y. The entry fee is one dollar in United States currency. The last day for receiving entries is August 1, 1947.

Resolution on Delay in Appointments to Hospital Staffs.—The Board of Regents of the American College of Surgeons at a meeting in Hot Springs, W. Va., April 24, carefully considered the problem of helping veterans and other young surgeons in obtaining appointments. The deliberations resulted in the adoption of the following resolution:

WHEREAS, It has come to the attention of the American College of Surgeons that many well trained surgeons, especially returned veterans, who have located or have signified their intention of locating in communities where there are hospital facilities, have been denied hospital privileges until they have been in residence in that locality for six months to a year; be it

Resolved, That the Board of Regents of the American College of Surgeons disapproves of the practice, and, although fully cognizant of the shortage of hospital beds, the Board believes that such well trained, competent and ethical individuals should be given opportunities similar to those offered to established medical practitioners of the community.

Cancer Study Grants Total Three Million Dollars.—Nearly $3,000,000 in grants for cancer research was distributed during 1945 and 1946 to finance two hundred and forty research projects in forty-eight universities, hospitals and other institutions, the American Cancer Society has announced. Research has turned special interest on the basic element on the growth of cells. As a result of initial work and a recent survey, a special panel of cell chemistry has estimated that $500,000 could be well spent annually in research in this field alone. Another project is investigating a possible effect on malignant growth of the enzyme systems. A vast amount of further study is recommended particularly to explore the effect of hormones and nucleotides on enzyme action. Projects under direction of the panel on virus are tracing the action of viruses in the cell through the use of radioactive substances produced at Oak Ridge, Tenn. The American Cancer Society has appropriated $100,000 for the purchase of stable isotopes.

Outbreak of Hoof and Mouth Disease in Mexico.—In a concerted effort by the Mexican and United States governments to eradicate a serious outbreak in Mexico of hoof and mouth disease, an average of 700 head of cattle, sheep, swine and goats are being killed daily. A board of agricultural experts are directing the battle against the disease, which threatens to spread to the United States. Maurice S. Shahan, D.V.M., co-director of the hoof and mouth commission in Mexico City, said on May 26 that the disease had advanced to within 300 miles of the United States but believed it had been checked. The United States closed its borders to Mexican cattle last December when the disease was officially diagnosed. The strategy of the board calls for cleaning up the fringe of the border of the area affected and gradually working toward the center. There have been seven outbreaks in the United States since 1870, the last two in 1924. The cost of eradicating the disease is being split, and $9,000,000 has been appropriated by the United States to share its cost in the early part of the campaign.

Fifth International Congress of Pediatrics Program.—The International Pediatric Congress will meet at the Waldorf-Astoria, New York, July 14-17 under the presidency of Dr. Henry F. Helmholz, Rochester, Minn. Program Chairman Dr. Rustin McIntosh has announced that, because American physicians are hosts, platform privileges have been given to authorities from throughout the rest of the scientific world. The program has been arranged with major sessions on nutrition Tuesday afternoon and on tuberculosis Thursday morning. Minor session subjects Wednesday morning and Thursday afternoon are Diseases Caused by Filtrable Viruses, Chemotherapy of Infectious Diseases, Neonatal Mortality, Incompatibility of Blood, Alimentary Toxicosis and Congenital Heart Disease. Sectional meetings to be held at the New York Academy of Medicine Wednesday afternoon are on Factors in Pregnancy Affecting the Child, Preventive Pediatrics, Bioimmunologic Procedures, Vitamin Requirements and Avitaminoses, Insect and Other Vectors of Disease, Rheumatic Fever, Endocrinology in Childhood and Miscellaneous Topics.

Mission to Tour Austria and Hungary.—The Interim Commission of the United Nations Health Organization will send a ten member team of health experts on a two month tour of Austria and Hungary this summer to explain the latest advances in scientific medicine to Austrian and Hungarian doctors. The group, organized by the Unitarian Committee of Boston, will be headed by Dr. Maurice B. Visscher, professor in physiology and head of the department, University of Minnesota, Minneapolis. Other American doctors include McKeen Cattell, head of the pharmacology department of Cornell University College of Medicine, New York; John J. Bittner, Ph.D., director of cancer research, University of Minnesota Medical School, Minneapolis; Chester M. Jones, clinical professor of medicine, Harvard Medical School, Boston; Alexander Brunschwig, now of the University of Chicago School of Medicine and, beginning July 1, clinical professor of surgery, Cornell University College of Medicine, New York; Joseph P. Evans, associate professor of surgery, University of Cincinnati, Cincinnati; Stuart C. Cullen, assistant professor of surgery, State University of Iowa College of Medicine, Iowa City, and S. Bernard Wortis, professor of psychiatry, New York University College of Medicine, New York. These men will leave June 26 and will join two Swiss members of the team in Vienna.

The Government's Savings Bond Campaign.—To obtain wider distribution of the securities issued on the public debt so that more Americans can own these bonds and share in the interest rates is the object of the U. S. Treasury Department June-July Savings Bond Campaign. Under the plan, checking account depositors can authorize their banks to deduct from balances each month the purchase price of one or more savings bonds, which will be delivered to depositors and the transaction recorded in periodic bank statements. Series E bonds pay $4 for $3 if the securities are held to maturity in ten years. Treasury Department officials believe the Bond-a-Month Plan is ideal for busy doctors for, once the doctor authorizes this systematic purchase of guaranteed securities, there is no need for any further action on his part. According to Commerce Department studies, the average practitioner's income begins to fall off at age 52½. A number of plans for systematic investment to provide for retirement incomes have been evolved by actuaries assuming the continuation of the sale of Savings Bonds. Following are two samples:

Plan A.—At age 27, buy a $50 series E bond monthly for $37.50 for ten years. At age 37, as the bonds mature each month, reinvest proceeds, interest and principal ($50) and make an additional investment of $100 a month, purchasing a $200 bond for $150. If all bonds are held to maturity the investor will begin to receive, at age 47, $200 a month, or a return of $24,000 on an original investment of $16,500.

Plan B.—At age 30, buy a $100 series E bond for $75 each month for ten years. At age 40, as the bonds mature, reinvest proceeds and add $200 a month, purchasing two $200 bonds monthly. If all bonds are held to maturity, income at age 50 will be $400 a month for ten years, or a return of $48,000 on an original investment of $33,000.

CORRECTION

Review of Motion Picture.—In a review of a motion picture entitled Plaster Casts in THE JOURNAL, May 10, page 208, it was stated that this film was produced during World War I. The statement should have read that it was produced during World War II.

Marriages

CHARLES RAYMOND KIEFER JR., Easton, Pa., to Miss Elizabeth Margaret Herron of Collingswood, N. J., February 18.

JOHN LEE FARRINGER JR., Knoxville, Tenn., to Miss Mary Margaret Smith of Fort Madison, Iowa, March 8.

WILLIAM BURFORD HAHN, Austin, Texas, to Miss Martha Harriett Ethridge of Meridian, Miss., March 7.

Deaths

Percy Starr Pelouze ● Philadelphia; born in Camden, N. J., in 1876; Jefferson Medical College of Philadelphia, 1902; assistant professor of urology at the University of Pennsylvania School of Medicine; specialist certified by the American Board of Urology; member of the American Urological Association; second president and at the time of his death honorary president of the American Neissarian Medical Society; served as consultant to the U. S. Public Health Service; member of the board of directors of the American Social Hygiene Association; in 1926 with Dr. Frederick S. Schofield received the Alvarenga Prize of the Philadelphia College of Physicians; served as cystoscopist at Jefferson Medical College, chief of urologic services, Episcopal Hospital in Philadelphia, and consultant to the Delaware County Hospital in Drexel Hill, Pa.; on the advisory editorial board of the *American Journal of Syphilis, Gonorrhea, and Venereal Diseases*; associate editor of the Cyclopedia of Medicine, Surgery and Specialties; died March 12, aged 70.

Curtis Latimer Callander ● San Francisco; Johns Hopkins University School of Medicine, Baltimore, 1917; associate clinical professor of surgery and topographical anatomy at the University of California Medical School; member of the American Association for the Surgery of Trauma; fellow of the American College of Surgeons; member of the founders group of the American Board of Surgery; associate visiting surgeon, University of California Division, San Francisco Hospital; in 1925, at the Atlantic City, N. J., session of the American Medical Association, received a gold medal for exhibit on surface capillaries in health and in disease; author of "Surgical Anatomy"; died March 30, aged 54, of heart disease.

Jesse Sharp Hixson, San Angelo, Texas; Missouri Medical College, St. Louis, 1899; member of the American Medical Association; fellow of the American College of Surgeons; at one time asistant surgeon at the St. Louis University School of medicine; formerly member of the school board; during World Wars I and II, medical adviser to Selective Service boards; medical superintendent of the Shannon West Texas Memorial Hospital; served on the staff of St. John's Hospital; active in establishing San Angelo Junior College; died January 22, aged 77, of arteriosclerotic heart disease and congestive failure.

Frank Warner Bishop, New York; Columbia University College of Physicians and Surgeons, New York, 1912; served during World War I; specialist certified by the American Board of Internal Medicine; fellow of the American College of Physicians; member of the New York Academy of Medicine and the American Medical Association; past president of the New York Clinical Society; past president of the medical board and alumni society of St. Luke's Hospital, where he served in various capacities for many years and where he died March 23, aged 59, of cerebral hemorrhage.

Wilford Daniel Albert, Leslie, Mich.; College of Medical Evangelists, Los Angeles, 1937; interned at the Saginaw (Mich.) General Hospital; died in the University Hospital, Ann Arbor, March 10, aged 39, of brain tumor.

Henry Croskey Allen ● Schwenkville, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1899; served overseas during World War I; formerly burgess of Schwenkville and school physician; died March 5, aged 69, of coronary thrombosis.

Orion T. Arnold, Laredo, Texas; Eclectic Medical Institute, Cincinnati, 1898; formerly associated with the U. S. Public Health Service; died March 12, aged 81, of hemiplegia.

John Anthony Balsiger, White Salmon, Wash.; Cooper Medical College, San Francisco, 1904; member of the American Medical Association; served on the staffs of the Sacred Heart Hospital in Spokane and the Hood River Hospital in Hood River, Ore.; died March 7, aged 70, of heart disease.

Conrad Cullis Bell, Philadelphia; Hahnemann Medical College and Hospital of Philadelphia, 1912; died March 6, aged 58, of angina pectoris.

Clement Campbell Blakely ● Barnum, Minn.; University of Minnesota College of Medicine and Surgery, Minneapolis, 1909; served during World War I; on the staff of the Community Hospital in Moose Lake; died March 26, aged 71, of cerebral hemorrhage.

William Wallace Bonner, Rock Mills, Ala.; Southern Medical College, Atlanta, 1892; member of the American Medical Association; died in Roanoke March 4, aged 80, of coronary embolus.

Harry Bishop Boram, South Bend, Ind.; Eclectic Medical Institute, Cincinnati, 1905; died in the Memorial Hospital March 1, aged 77, of arteriosclerosis.

Harrold K. Bryant, Detroit; Detroit College of Medicine, 1900; died in the Receiving Hospital March 1, aged 70, of burns when his home and office quarters were destroyed by fire.

Robert L. Carrick, Lexington, Ky.; Pulte Medical College, Homeopathic, Cincinnati, 1888; served on the staffs of St. Joseph's Hospital and Good Samaritan Hospital, where he died March 7, aged 81, of cerebral hemorrhage.

Andre Aloysius Castaldi, New York; Eclectic Medical College, Cincinnati, 1922; member of the American Medical Association; for many years affiliated with the Bronx Eye and Ear Infirmary; died March 27, aged 53, of coronary thrombosis.

Clarence Henry Christianson, Superior, Wis.; Marquette University School of Medicine, Milwaukee, 1927; member of the American Medical Association; on the staffs of St. Mary's, St. Francis and St. Joseph's hospitals; died March 8, aged 33, of agranulocytosis and pneumonia.

Harry Sylvester Church, East St. Louis, Ill.; St. Louis University School of Medicine, 1906; died in the Christian Welfare Hospital March 9, aged 66, of heart disease.

Joshua Williams Clarke ● Attleboro, Mass.; University of the South Medical Department, Sewanee, Tenn., 1901; Medico-Chirurgical College of Philadelphia, 1910; veteran of the Spanish-American War and World War I; on the staff of the Sturdy Memorial Hospital; died March 27, aged 76, of coronary disease.

Albert H. Cochran, Atlanta; University of Georgia Medical Department, Augusta, 1897; served as city councilman, alderman and mayor pro tem; died March 5, aged 72, of myelogenous leukemia.

Emmett G. Colvin, Locust Grove, Ga.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1899; member of the American Medical Association; died in St. Joseph's Hospital, Atlanta, February 27, aged 69, of carcinoma.

Clarence Weiny Cook ● Los Angeles; University of Southern California School of Medicine, Los Angeles, 1908; on the staff of the Methodist Hospital; died March 2, aged 71, of myocarditis.

George Francis Corrigan, Newark, N. J.; Marion-Sims College of Medicine, St. Louis, 1899; died March 5, aged 68, of coronary disease.

Charles Clement Cropper ● Lynchburg, Ohio; Louisville (Ky.) Medical College, 1897; member of the board of public affairs for many years; died in Alpine, Texas, March 4, aged 75, of diabetes mellitus and heart disease.

Walter Everett Doering ● Los Angeles; University of Southern California School of Medicine, Los Angeles, 1902; affiliated with the Hollywood-Presbyterian Hospital, where he died March 8, aged 69, of cerebral hemorrhage.

Michael Ercole Deluca, ● Troy, N. Y.; Albany (N. Y.) Medical College, 1911; fellow of the American College of Surgeons; on the staff of the Troy Hospital; died March 8, aged 58, of coronary heart disease.

Charles Henry Dixon, St. Louis; Baltimore Medical College, 1894; died in the Barnes Hospital March 9, aged 75, of coronary thrombosis and carcinoma of the colon.

Mary Phylinda Dole, Shelburne, Mass.; Woman's Medical College of Baltimore, 1888; member of the American Medical Association; died February 23, aged 84, of heart disease.

Henry Rhea Douglas, Harrisburg, Pa.; University of Pennsylvania Department of Medicine, Philadelphia, 1902; member of the American Medical Association; past president of the Harrisburg Academy of Medicine and the Dauphin County Medical Society; veteran of the Spanish-American War; on the staff of the Harrisburg Hospital; member of the board of directors of the public library; died March 6, aged 71, of arteriosclerosis and chronic nephritis.

Joseph James Dunnigan, Syracuse, N. Y.; New York Homeopathic Medical College and Flower Hospital in New York, 1917; member of the American Medical Association; served during World War I; member and past president of the staff of the General Hospital, where he died March 16, aged 55, of cerebral hemorrhage.

Raymond Edwin Elliott, Rochester, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1915; member of the American Academy of Ophthalmology and Otolaryngology and the American Medical Association; specialist certified by the American Board of Otolaryngology; on the staff of St. Mary's Hospital, where he died March 4, aged 56, of chronic nephritis.

William Thomas Elliott, Berwick, Maine; Dartmouth Medical School, Hanover, N. H., 1900; member of the American Medical Association; affiliated with the Frisbie Memorial Hospital in Rochester, N. H.; died February 26, aged 76, of angina pectoris.

Ernest L. Epperson, St. Louis; College of Physicians and Surgeons, Keokuk, Iowa, 1883; died March 3, aged 87, of myocarditis.

Charlie Welton Evans, Apple Springs, Texas (licensed in Texas by years of practice); member of the American Medical Association; died in Lufkin in March, aged 66, of carcinoma of the liver.

Morris Feintuch, Brooklyn; Long Island College of Medicine, Brooklyn, 1933; interned at the Unity Hospital; served in the medical corps, Army of the United States, during World War II; died July 4, 1946, aged 39, of coronary thrombosis.

William J. Flint, Watertown, N. Y.; New York Homeopathic Medical College and Hospital, New York, 1890; member of the American Medical Association; on the staffs of the House of Good Samaritan and the Mercy Hospital; died March 1, aged 76, of cerebral hemorrhage.

Charles Franklin Frosh, Columbus, Ohio; Starling-Ohio Medical College, Columbus, 1909; member of the American Medical Association; on the staffs of the Mount Carmel, White Cross, Mercy and Grant hospitals; died March 1, aged 62, of heart disease.

Ulysses Grant Gallemore, Melber, Ky.; Vanderbilt University School of Medicine, Nashville, Tenn., 1895; died March 2, aged 81, of heart disease and intestinal carcinoma.

James M. Gaume, Salina, Kan.; Ensworth Medical College, St. Joseph, 1906; died February 20, aged 70, of cerebral hemorrhage and hypertension.

William S. Gooch ● Fort Scott, Kan.; Beaumont Hospital Medical College, St. Louis, 1900; for many years county health officer; chief of staff of the Mercy Hospital, where he died February 21, aged 72, of heart disease following an operation on the prostate.

Charles Butler Hamma, Springfield, Ohio; Miami Medical College, Cincinnati, 1892; member of the American Medical Association; formerly assistant director of public health; served during World War I; died February 25, aged 80, of cardiorenal disease and diabetes mellitus.

Clarence E. Hanes, Indianapolis; Eclectic Medical College of Indiana, Indianapolis, 1904; died March 4, aged 73, of cirrhosis of the liver.

John Douglas Harrison, Greenwood, S. C.; Medical College of the State of South Carolina, Charleston, 1911; member of the American Medical Association; served as a member of the National Guard, on the Mexican border and during World War I; on the staff of the Greenwood Hospital; died March 5, aged 59, of coronary occlusion.

Gustave Esaias Henschen, Sherman, Texas; Dearborn Medical College, Chicago, 1904; member of the American Medical Association and honorary member of the State Medical Association of Texas; past president of the Grayson County Medical Society; served in France during World War I; died January 4, aged 72, of myocarditis.

William M. Holman, Lee, Va.; Medical College of Virginia, Richmond, 1890; member of the American Medical Association; died in Richmond February 22, aged 86.

Joseph Will Horton, Monrovia, Ind.; Medical College of Indiana, Indianapolis, 1900; died March 10, aged 77, of coronary occlusion.

James Wilson House, Bruceville, Ind.; Starling-Ohio Medical College, Columbus, 1908; died in St. Vincent's Hospital Indianapolis, March 3, aged 68, of nephritis.

Francis Edward Jones ● White Plains, N. Y.; McGill University Faculty of Medicine, Montreal, Que., Canada, 1921; served during World War I; on the staffs of the White Plains Hospital and St. Agnes Hospital; found dead March 1, aged 53, of coronary thrombosis.

James M. Judd, Varina, N. C.; Baltimore Medical College, 1897; member of the American Medical Association; past president of the Wake County Medical Society; for many years chairman of the local school board; bank president; affiliated with the Rex Hospital and the Mary Elizabeth Hospital in Raleigh; died March 7, aged 76, of coronary occlusion.

Zygmunt L. Kadlubowski, Detroit; Michigan College of Medicine and Surgery, Detroit, 1899; died in the Wayne County General Hospital March 2, aged 78, of coronary thrombosis and cerebral hemorrhage.

Arthur Dale Kirk ● Flint, Mich.; University of Michigan Medical School, Ann Arbor, 1923; fellow of the American College of Surgeons; member of the Detroit Academy of Obstetrics and Gynecology; served as chairman of the maternal health committee of the Genesee County Medical Society; for many years affiliated with the Hurley Hospital, where he died March 4, aged 46, of uremia.

Bartholomew Kunny ● Baldwin, Wis.; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1910; past president of the village of Baldwin; president of the Baldwin Community Hospital; died in South Laguna, Calif., January 28, aged 66, of coronary thrombosis.

Charles Allen Lanon, Pittsburgh; Temple University School of Medicine, Philadelphia, 1916; served as secretary of the National Medical Association; died February 19, aged 56, of cardiorenal disease.

Frieda E. Lippert, Philadelphia; Woman's Medical College of Pennsylvania, Philadelphia, 1889; died in the Norristown (Pa.) State Hospital Dec. 3, 1946, aged 80, of arteriosclerosis.

Vernon MacCammon, Arkansas City, Ark.; Kentucky School of Medicine, Louisville, 1898; member of the American Medical Association; local surgeon for the Missouri Pacific Railroad; died January 6, aged 70 of heart disease.

Thomas Henry Magness, Baltimore; Baltimore University School of Medicine, 1901; died February 28, aged 67, of injuries received when struck by a street car.

Damon George Matthews, Milton, Iowa; St. Louis College of Physicians and Surgeons, 1911; member of the American Medical Association; died in Ottumwa January 9, aged 67.

Solomon Mayantz, New York; University of Kharkov Faculty of Medicine, Russia, 1913; died in February, aged 66.

Lawson A. Meeker, Holgate, Ohio; University of Louisville (Ky.) Medical Department, 1897; member of the staff of the Detwiler Memorial Hospital in Wauseon; died February 25, aged 73, of cerebral hemorrhage.

Edward D. Miles, Carthage, Mo.; Missouri Medical College, St. Louis, 1885; died in the McCune-Brooks Hospital March 10, aged 83, of uremia and pneumonia.

Carlton Mitchell, New Orleans; Medical Department of Tulane University of Louisiana, New Orleans, 1898; died in a hospital at Miami Beach, Fla., February 12, aged 85.

Seth Eastman Moore, Palo Alto, Calif.; University of Pennsylvania Department of Medicine, Philadelphia, 1898; at one time on the faculty of the University of Minnesota Medical School in Minneapolis; died in the Providence Hospital, Washington, D. C., February 28, aged 71, of cerebral hemorrhage.

Frederick Henry Morhart ● Washington, D. C.; Columbian University Medical Department, Washington, D. C., 1898; served during the Spanish-American War and World War I; director of the Liberty National Bank; died in the Doctors Hospital, March 5, aged 72, of cirrhosis of the liver.

Antonin D. Mueller ● Chicago; Chicago Physio-Medical College, 1896; died March 4, aged 84, of chronic myocarditis.

Ida May Shively Herr Nelson, Sanitarium, Calif.; Northwestern University Woman's Medical School, Chicago, 1897; served on the staff of St. Helena Sanitarium and Hospital, where she died February 11, aged 79, of carcinoma of the intestine.

James Nightingale, Worcester, Mass.; Harvard Medical School, Boston, 1900; member of the American Medical Association; served during World War I; medical director of the Jewish Home for Aged and Orphans; died March 6, aged 70, of cerebral hemorrhage and bronchopneumonia.

Lytle Neale Patrick, Gastonia, N. C.; University of Maryland School of Medicine, Baltimore, 1909; also a pharmacist; for many years city physician; died February 12, aged 63, of cerebral hemorrhage.

George William Payne ● Bardwell, Ky.; Missouri Medical College, St. Louis, 1899; past president of the Carlisle County Medical Society; past president of the school board; active in the chamber of commerce; affiliated with St. Mary's Hospital in Cairo, the Riverside Hospital and the Illinois Central Railroad Hospital in Paducah, where he died March 7, aged 73, of coronary occlusion.

Linton Yancey Pittard, Monticello, Ga.; St. Louis University School of Medicine, 1912; member of the American Medical Association; burned to death February 14, aged 59.

Frank Bert Rasbach, Buffalo; Bellevue Hospital Medical College, New York, 1891; died February 24, aged 80, of transverse myelitis and bronchopneumonia.

George Stiles Reitter ● East Orange, N. J.; Albany Medical College, 1915; specialist certified by the American Board of Radiology; member of the American College of Radiology; served overseas during World War I; consultant to the Essex Mountain Sanatorium in Verona, Essex County Hospital for Contagious Diseases in Belleville and the Essex County Hospital in Cedar Grove; died in the Veterans Administration Hospital in Lyons, March 5, aged 58, of empyema.

Rush Rodger Richison, Springfield, Ohio; Ohio Medical University, Columbus, 1904; member of the American Medical Association; health director of Springfield; formerly county health commissioner; past president, secretary and treasurer of the Clark County Medical Society; at one time mayor of Yellow Springs; served three terms as president of the medical staff at Springfield City Hospital; formerly medical superintendent of the District Tuberculosis Hospital; died January 1, aged 65, of coronary thrombosis.

August Herman Ringen, Sweet Springs, Mo.; Marion-Sims College of Medicine, St. Louis, 1899; member of the American Medical Association; died January 24, aged 76, of heart disease.

Clayton Elbert Royce, Tampa, Fla.; Columbia University College of Physicians and Surgeons, New York, 1911; member of the American Medical Association, American College of Physicians and the American Society of Clinical Pathologists; specialist certified by the American Board of Pathology; served on the staff of St. Vincent's Hospital in Jacksonville; died February 12, aged 60, of coronary occlusion.

John Hollibaugh Sanford, Santa Rosa, N. M.; University of Tennessee College of Medicine, Memphis, 1913; formerly mayor; died February 22, aged 56, of heart disease.

Kalmen Charles Sapero, Denver; Louisville (Ky.) Medical College, 1894; died February 28, aged 79, of cerebral hemorrhage.

Joseph J. Schultis ● Butler, Pa.; Medico-Chirurgical College of Philadelphia, 1895; died recently, aged 75, of cardiac failure.

William Samuel Scott, Richmond, Va.; University of Virginia Department of Medicine, Charlottesville, 1916; served during World War I; killed March 6, aged 52, when struck by an automobile.

David A. Sherrill, Newbern, Tenn.; University of Tennessee Medical Department, Nashville, 1888; died February 28, aged 89, of myocarditis and arteriosclerosis.

John Beach Solley ● New York; Columbia University College of Physicians and Surgeons, New York, 1898; member of the American Psychoanalytic Association; for many years associated with the Manhattan Eye, Ear and Throat Hospital; died in St. Luke's Hospital March 3, aged 75, of cerebral hemorrhage.

Kuno Herbert Struck ● Davenport, Iowa; State University of Iowa College of Medicine, Iowa City, 1906; vice president of the Davenport Bank & Trust Company; served as secretary of the park board of Davenport, president of the library board, secretary of the Municipal Art Gallery board of trustees and president of the chamber of commerce; past president of the Scott County Medical Society; secretary and medical officer of a local draft board during World War I; died March 4, aged 63, of cerebral hemorrhage.

Clara Josephine Swan, Chardon, Ohio; State University of Iowa College of Homeopathic Medicine, Iowa City, 1887; member of the American Medical Association; died in the Huron Road Hospital, East Cleveland, March 7, aged 80, of carcinoma of the pancreas, with metastases.

Frank Lehr Thomas, Marion, Ohio; Eclectic Medical College, Cincinnati, 1924; member of the American Medical Association; served during World War I; member of the city school board; on the staff of the Marion City Hospital; died February 4, aged 54, of coronary thrombosis.

Edward F. Wehner, Clarksburg, W. Va.; College of Physicians and Surgeons, Baltimore, 1902; honorary member of the Harrison County Medical Society and the West Virginia State Medical Association; fellow of the American College of Surgeons; on the staff of St. Mary's Hospital; died March 3, aged 71, of coronary thrombosis.

Benjamin Franklin White Jr., ● Bradford, Pa.; Hahnemann Medical College and Hospital, Philadelphia, 1907; served overseas during World War I; on the staff of the Bradford Hospital; died February 7, aged 65, of arthritis.

Ruffin Ashe Wright, Mobile, Ala.; University of Virginia Department of Medicine, Charlottesville, 1889; member of the American Medical Association; died March 3, aged 81, of heart disease and pneumonia.

DIED WHILE IN MILITARY SERVICE

Thomas Matthew Calladine, Chicago; University of Rochester School of Medicine and Dentistry 1943; interned at the University of Chicago Clinics; began active duty as a lieutenant (jg) in the medical corps of the U. S. N. R., on Jan. 10, 1944; promoted to lieutenant; died in the Robert Merritt Billings Hospital February 27, aged 29, of testicular embryonal carcinoma with metastases.

William Stewart Chadwick, Beaufort, N. C.; Medical College of Virginia, Richmond, 1928; interned at the James Walker Memorial Hospital in Wilmington; formerly acting assistant surgeon in the U. S. Public Health Service; began active duty as a lieutenant commander in the medical corps of the U. S. Naval Reserve; promoted to commander; died in the Morehead City Hospital, Morehead City, Jan. 6, 1946, aged 43, of coronary thrombosis.

Frederick Ernest Keane Clarke, Santa Monica, Calif.; University and Bellevue Hospital Medical College, New York, 1927; member of the American Medical Association; diplomate of the National Board of Medical Examiners; interned at the Staten Island Hospital in Staten Island, N. Y.; formerly assistant in clinical medicine at his alma mater; served on the staffs of the Veterans Administration Facility in West Los Angeles and the Santa Monica Hospital; entered the medical corps, Army of the United States, as a captain on May 15, 1944; served in the Pacific theater with the 49th General Hospital; died while on terminal leave May 14, 1946, aged 47, of coronary occlusion.

Dual Alastair Macintyre, Palmer, N. Y.; Albany (N. Y.) Medical College, 1939; interned at the Meadowbrook Hospital in Hempstead, where he served a residency in surgery; diplomate of the National Board of Medical Examiners; began active duty as a lieutenant (jg) in the medical corps of the U. S. Naval Reserve on May 25, 1942; promoted to lieutenant; drowned May 18, 1944, aged 32.

Roger Beasley Martin, New Rochelle, N. Y.; Johns Hopkins University School of Medicine, Baltimore, 1943; diplomate of the National Board of Medical Examiners; interned at the Johns Hopkins Hospital in Baltimore; captain, medical corps, Army of the United States; died in the Valley Forge General Hospital, Phoenixville, Pa., May 15, 1946, aged 30.

Charles Howard Mortimer ● New York City; Columbia University College of Physicians and Surgeons, New York, 1937; served a residency at the Pilgrim State Hospital in Brentwood; formerly an intern at St. Vincent's Hospital in New York, where he served a residency; first lieutenant, medical corps, Army of the United States; passenger aboard B-24 aircraft which failed to return from combat ferry mission in 1944; presumptive date of death Jan. 26, 1946, aged 34, according to the U. S. Army.

Julius Hurst Smith ● Lieutenant Commander (MC), U. S. Navy, Pelham, Ga.; University of Georgia School of Medicine, Augusta, 1941; interned at the Macon Hospital in Macon, Ga.; began active duty as lieutenant (jg) in the medical corps of the U. S. Naval Reserve in 1942; later joined the medical corps of the regular navy in the same rank; promoted to lieutenant and lieutenant commander; died in the Naval Hospital, San Diego, March 21, 1946, aged 31, of hepatic abscess.

Michael Thomas Tedesco, Hammond, Ind.; Eclectic Medical College, Cincinnati, 1928; interned at the Jennie Edmundson Memorial Hospital, Council Bluffs, Iowa; served a residency at the Lord Lister Hospital in Omaha; major, medical corps, Army of the United States; died in Camp Hood, Texas, April 16, 1945, aged 46, of general peritonitis secondary to appendical abscess.

Clarence Warren Whittaker, Easton, Maine; Tufts College Medical School, Boston, 1943; interned at the Boston City Hospital; diplomate of the National Board of Medical Examiners; began active duty as a first lieutenant in the medical corps, Army of the United States, in September 1944; promoted to captain; head of the medical department for a prisoner of war camp at Luzon Island in the Philippines; died in Luzon Island Sept. 20, 1946, aged 27, of pneumonia and injuries received in a jeep accident.

Foreign Letters

LONDON

(From Our Regular Correspondent)

May 3, 1947.

Penicillin in Suppurative Conditions of the Brain

At the Royal Society of Medicine a joint meeting of the Section of Neurology with the Société de neurologie of Paris was held. Sir Hugh Cairns discussed the use of penicillin in suppurative conditions of the brain and meninges. It might be given by the lumbar or cisternal route or into the lateral ventricle. Unless there was blockage it would spread freely. Normally 12,000 units would maintain a bacteriostatic level for twenty-four hours, but occasionally, for example early in pyogenic meningitis, this dose might have to be given every twelve hours. The upper limit of tolerance for crystalline penicillin had not been worked out; but heavy doses of 50,000 to 100,000 units might cause severe meningeal reactions. Such large doses could do no good and might do harm. There was never need to exceed 20,000 units in one day. Intrathecal penicillin continued for some weeks caused depression of the ankle jerks, suggesting damage to the cauda equina, which was reversible. Normally penicillin was given by the lumbar route. If there was a block, of which the most important sign was difficulty in obtaining cerebrospinal fluid by lumbar puncture, the cisternal route might be adopted. But with some head retraction this might not be easy, and blocks sometimes occurred above the cisterna magna, so that there should be no hesitation in injecting the lateral ventricle. For pachymeningitis and subdural abscess, penicillin was given into the subdural spaces, from which it passed about as rapidly as from muscle. Usually 8,000 to 10,000 units was injected every four hours.

Penicillin injected systemically did not pass in appreciable amounts into the cerebrospinal fluid. Nevertheless it had its value in pyogenic meningitis. It helped to combat the primary focus and the septicemia from the primary focus or a relapsing meningitis. It helped to overcome infection of the cerebral blood vessels. Probably penicillin could pass from the blood stream into the perivascular spaces of the brain and thus might be valuable in acute pyogenic meningitis (which is more correctly a meningoencephalitis). Also it might limit the spread of a brain abscess. Penicillin appeared to pass freely from the blood stream into the subdural space. Crystalline penicillin appeared to be nontoxic when given systemically. One patient received 300 million units without reaction. The sulfonamides should be given with penicillin; they were especially valuable when intrathecal penicillin was stopped. Until the diagnosis of meningitis was established bacteriologic treatment should be confined to systemic penicillin and sulfonamides.

S. Monckton Copeman: An Authority on Vaccination

Dr. S. Monckton Copeman, who at one time was the leading authority on vaccination, has died at the age of 85. In 1891 he became a medical officer to the Local Government Board. His papers on the relation between variola and vaccinia were so important that they were published in the *Proceedings of the Royal Society*, which awarded him its fellowship, the highest scientific distinction in this country. He is best known for his work on glycerinated lymph for vaccination. This device was not new, but he was the first to show the selective effect of the glycerin in eliminating extraneous germs from vaccine lymph without affecting the specific virus. One of the stock objections to Jenner's vaccination was that Jenner had never proved that there was any biologic relationship between cowpox and smallpox, so that it was absurd to think that an attack of one disease would produce immunity against a different disease. The results of inoculating calves with smallpox matter had not always been satisfactory. It occurred to Copeman to pass smallpox virus through monkeys and then to vaccinate a calf from a monkey. He thus produced typical vaccinia, which gave excellent strains of vaccine lymph. Copeman's view was that cowpox may have originated from inoculated smallpox. Although the inoculated strains rarely produced a general eruption, the local sore often itched badly. Copeman therefore suggested that it would be easy for the inoculated milker who scratched his arm to convey material to the udder.

COPENHAGEN

(From Our Regular Correspondent)

April 7, 1947.

The School Children of Copenhagen During the War

In October 1941 the senior school medical officer of Copenhagen, Dr. G. Jørgensen, sounded a note of warning about the health of school children under war conditions in Copenhagen. Measures were accordingly taken to counteract these conditions as much as possible, and from the beginning of 1943 a special ration of cod liver oil was issued, with the result that 87 per cent of the school children examined received some cod liver oil every day. At the same time an educational campaign for the better utilization of available food was conducted vigorously. A recent postwar survey of the health of the school children in Copenhagen by Dr. Knud Bojlen makes good reading; there has been no material deterioration in general health, and that telltale public health index, the tuberculin test, shows that the percentage of positive reactors declined steadily throughout the war.

Bovine Tuberculosis and BCG Vaccination

In 1937 tuberculosis had been stamped out in barely half the herds of cattle in Denmark. But the systematic campaign against this scourge has been so effective that by 1946 the claim could be made that between 95 and 100 per cent of the Danish herds were tuberculosis free. This means that fewer and fewer Danish children and adolescents will be tuberculin positive, and already there are several Danish schools in which practically all the students are tuberculin negative. Now that there is a prospect of systematic BCG vaccination of tuberculin negative persons at the school leaving age, it will be seen how comprehensive this measure will soon become. Already in the island of Bornholm over 22 per cent of all the inhabitants had undergone BCG vaccination by 1945, and it looks as if the pace set by Bornholm will be emulated by several other communities in Denmark.

Hay Fever

The incidence of hay fever depends on geography. In the five year period 1941-1945 Dr. E. Bruun and Dr. M. Schwartz treated 69 hay fever patients at the Rigshospital's polyclinic for cases of allergic disease. As many as 63 of these patients suffered from midsummer hay fever (June-July) while there were only 2 cases of spring hay fever (March-May) and only 4 cases of autumn hay fever (August-October). In the United States it seems that the autumn cases are the most numerous, a phenomenon reflecting differences in the flora of the two countries. In 67 cases desensitization was attempted by injections of an extract of pollen, good results being achieved in 59. These injections were as a rule started about April 1 and continued for two months, during which from twenty-four to thirty were given. Among the patients were 16 who also suffered from seasonal asthma, which in 14 cases disappeared completely under this prophylactic treatment.

V 13
1947

Correspondence

PROPYLTHIOURACIL IN THYROTOXICOSIS

To the Editor:—The article on the use of propylthiouracil in thyrotoxicosis by Dr. William S. Reveno (THE JOURNAL, April 19, p. 1190) presented some unusual if not distressing data. Of 18 previously untreated cases, 9 were reported with initial basal metabolic rates ranging from plus 9 to plus 15 inclusive. While I am not unaware that thyrotoxicosis may occur with a metabolic rate near plus 15, such an occurrence is decidedly uncommon and should be supported by carefully documented observations. I believe the use of so potent and revolutionary a drug as propylthiouracil certainly demands more care in the selection of cases to be reported.

JOSEPH S. FEIBUSH, M.D., New York.

[NOTE.—This letter was referred to Dr. Reveno, who replies:]

To the Editor:—All the reported cases, including those with relatively low basal metabolic rates, presented a majority of the symptoms of thyrotoxicosis such as palpitation, nervousness, sweating, heat intolerance, weakness, weight loss, tremor, warm moist palms, lidlag or widened palpebral fissures and elevated pulse pressures. The thyroid gland showed either a nodular or a diffuse enlargement. Two initial basal metabolic rate determinations were made on separate days and the lower of these was reported. With the exception of 1 patient who died, all have since responded to treatment with subsidence of symptoms and lowering of the basal metabolic rate.

That 9 patients out of a small group showed basal metabolic rates under plus 15 per cent is not as important as that all presented unmistakable evidence of thyrotoxicosis.

WILLIAM S. REVENO, M.D., Detroit.

COLD PACKS TO PROTECT TESTES IN MUMPS

To the Editor:—I read with interest a communication on cold packs suggested as a protective for testes in mumps in THE JOURNAL, Oct. 26, 1946. In view of the actual experience, it would be unfair to let the suggestion pass uncriticized. I am not a research scholar, nor am I given to "armchair philosophizing." With the large amount of clinical material available in India, I wish to record some observations which may have a bearing on the point at issue. I have seen patients with continuous high temperature (104-105 F.) for days on end without their productivity being affected in any way after the severe illness.

In India as a result of hot climate there is often a laxity of scrotal tissues. To prevent the unpleasant sensation of "drooping" testes in the loose scrotal bag it is customary in the working classes to keep them tightly held up by a double layer of a thick broad piece of cloth between the thighs and tied round the waist. This will be expected to raise the temperature of the testes to that of the body, particularly during hard physical exertion. After years of such habit, the persons are found to be as much potent for reproduction as before.

Thus it appears that rise of temperature does not appear to be the sole cause of degeneration of the testicular tissue in living subjects. In mumps the frequent involvement of testes and ovaries suggests that the causative virus is gonadotropic. It has a tendency to incite inflammatory changes in the gonads, which are often followed by fibrosis and atrophy. Under these circumstances it is extremely doubtful that cold packs will act as protective for testes in mumps, as suggested in the communication.

In practice I have found early multiple acupunctures of the tunica albuginea a useful procedure in the prevention of testicular atrophy in mumps. The procedure was first advocated by Henry Smith in 1864 for acute gonococcic epididymitis and later recommended for acute orchitis in mumps by Wesselhoeft and Vose (*New England J. Med.* **227**:277 [Aug. 20] 1942; cited in Operation for the Orchitis of Mumps, *Brit. M. J.* **1**:138 [Jan. 30] 1943). It is believed that tubular degeneration in mumps is brought about by increased intratesticular tension resulting from an acute inflammatory condition produced in it by the virus. Early acupuncture helps to relieve tension and thus prevents degeneration and atrophy of the testicular tissue. The authors mentioned recommend exposure of the swollen organ and a longitudinal or crucial incision of the tunica albuginea. The operation, they claim, affords an immediate relief of pain. They report 9 cases of orchitis in mumps in which they were able to prevent atrophy by early operative intervention. In practice in India, where such an elaborate operation cannot be undertaken, multiple acupunctures work as well.

P. L. DESHMUKH, M.D.(BOM.),
D.T.M.H.(LOND.), F.C.P.S.(BOM.),
Poona City, India.

AMERICAN ACADEMY FOR CEREBRAL PALSY

To the Editor:—I believe that the readers of THE JOURNAL will be particularly interested in an action which was taken in the latter part of January by a group of medical men who serve the National Society for Crippled Children and Adults as a medical advisory council in its national cerebral palsy program. The advisory council is composed of Dr. Earl Carlson of Long Island, N. Y., and Pompano, Fla., Dr. Bronson Crothers of Boston, Dr. George Deaver of New York, Dr. Temple Fay of Philadelphia, Dr. Meyer Perlstein of Chicago and Dr. Winthrop M. Phelps of Baltimore as chairman.

Meeting in Chicago at the time of the American Academy of Orthopedic Surgeons, this group voted to organize an American Academy for Cerebral Palsy, of which those present would constitute the charter members. Dr. Winthrop Phelps was selected as chairman and I was chosen secretary.

This action was taken because there is currently a tremendous interest in the cerebral palsied and a demand for services which are nonexistent. Trained personnel is desperately needed, and at present there are no standards for the training of such personnel.

In the opinion of the group the American Academy for Cerebral Palsy, though not serving as a certifying board, will set up certain standards of training, will serve as a clearing house for information and will be a focal point for interest in the field.

M. A. PERLSTEIN, M.D., Chicago.

OTOSCLEROSIS

To the Editor:—In THE JOURNAL of March 29 I find an editorial regarding otosclerosis. Mention is not made of the use of benzyl cinnamate, otherwise known as Jacobson's Solution and distributed by E. Fougera & Co., New York. A preliminary report of the use of this solution was abstracted in THE JOURNAL, Dec. 25, 1943, page 1141. Since that time I have used this medication a number of times, the ages of the patients ranging from 25 to 75, and the results have been most gratifying both to the patients and to myself.

By the use of a balanced tuning fork I determine whether the eighth nerve is at fault; if it is I do not recommend benzyl cinnamate. In cases of conduction deafness, tinnitus and associated vertigo, relief has been gratifying and patients have been greatly helped.

JOHN J. SMITH, M.D., Santa Monica, Calif.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Dental Practice Acts: Revocation of License for Associating with Laymen.—The Dental Practice Act of West Virginia authorizes the revocation of a dentist's license for, among other things: ". . . professional connection or association with, or lending his name to another, for the illegal practice of dentistry, or, professional connection or association with any person, firm or corporation, holding himself, themselves, or itself out in any manner contrary to this article." For a violation of this provision, the State Board of Dental Examiners revoked the defendant's license and from an order of the Circuit Court reversing this revocation order the petitioner, Huntington Dental Society, appealed to the Supreme Court of Appeals of West Virginia.

Prior to December 1943 one Harry Devore, a dental technician, had had his laboratory on Madison Avenue in Huntington, W. Va., adjoining the offices of Dr. Nichols, a practicing dentist. In 1942 five indictments were returned against Devore for the illegal practice of dentistry. He pleaded guilty to each count, was sentenced, served his time and then returned to his old office. Dr. Nichols died sometime before December 1943 and the defendant Winton, whose office was then on Third Avenue, decided that he would move to the office Nichols had occupied, at the same time retaining his office on Third Avenue in order to keep from losing practice until he became permanently located. In 1944 Devore was again indicted, and defendant was questioned by the Huntington Dental Society concerning his association with him. He gave up his Madison Avenue office and practiced only at his Third Avenue location until after Devore's acquittal, Dr. Winton having been one of Devore's principal witnesses. After Devore's acquittal he "started coming" to defendant's Third Avenue office, "picking up" impressions or molds and taking them to his Madison Avenue laboratory for prosthetic work, or the making of artificial teeth mounted on plates. About this time defendant consulted an attorney for the purpose of determining whether or not there was any reason why he should not occupy joint offices with Devore in the light of the fact that Devore had been indicted for the illegal practice of dentistry but acquitted. He was told that there was not. He therefore rented six rooms at the corner of Eighth Street and Sixth Avenue, three of which he occupied himself and three of which he sublet to Devore.

In September 1944 a professional investigator employed by the petitioner called Dr. Winton's office on the telephone, asked for an appointment and was told to come immediately. He went, found Devore at the office and recognized him as probably being the person with whom he had talked on the telephone. Being told that he wanted an upper and a lower plate, Devore seated him in a dental chair and stated that he must call Dr. Winton on the telephone. With whomever he talked he asked "Do you want me to go ahead and work on him?" The investigator did not hear the reply but states that Devore said that he would go ahead and "work on him." Devore then examined his mouth in detail, mixed a mortar or plaster to be used in taking an impression, placed a ladle containing the mixture in investigator's mouth, made an impression and went into his laboratory. Later he made an additional impression, being dissatisfied with the first. After Devore made the second impression, he stated that he had finished and asked for and received a $5 deposit, giving investigator a receipt for the deposit signed "Dr. J. L. Winton by H. C. D." (investigator using the name of K. E. Taylor) and telling him to return the following evening. As Devore was preparing the receipt defendant entered the office but neither investigator nor defendant spoke to each other. On September 28 investigator returned to the office and met Dr. Winton. Being informed that he wished to see the "Doctor" who had taken his impression Tuesday evening, defendant called to "Harry" and Devore appeared, placed investigator in the dental chair and proceeded to fit the two plates, returning to the laboratory to grind them two or three times. As investigator was leaving, Devore explained that he was not permitted to make impressions or to fit teeth and that defendant "fronted" for him. At the hearing, Dr. Winton's version of the conversation over the telephone was a direct contradiction to investigator's. Defendant said that Devore told him that there was a patient in the office who wished some impressions made and that his response was "Hold him. I will be there in a few minutes." It doesn't appear how long it took Devore to take the impressions or how long it took defendant to get from his home to his office. At any rate the impressions were evidently made in what defendant would estimate as "a few minutes," because when he reached his office they were finished. He said that he was very much incensed at Devore's having done the work, that he did not speak to Devore about it that evening but that the next morning he reprimanded him severely.

The surrounding circumstances, said the court, we regard as quite damaging to Dr. Winton's defense. Devore had been sentenced and convicted of violating the law by practicing dentistry illegally and had served time therefor. He had been indicted again for the same offense, tried and acquitted. It is fairly well established that, following his acquittal, he was illegally practicing dentistry in what were his and defendant's joint office. Defendant had had his attention directed to the questionableness of Devore's methods while the second indictment against Devore was pending and had then severed the connection. After that the association was renewed, however. Dr. Winton denies actual knowledge of many of these circumstances, particularly of the conviction of Devore, until after the second indictment. These are matters that casual inquiry would have disclosed. In a prior West Virginia case it was held that the decision of the Public Health Council (in the same situation as the Board of Dental Examiners in this case) revoking a license will not be disturbed on appeal unless the Council has exceeded its power or based its decision on a mistake of law. We believe, said the court, that it is necessary to find that the State Board of Dental Examiners attached more importance to the testimony of the witnesses of the petitioner than to that of Dr. Winton. In doing so it did not exceed its powers or commit a mistake of law. Accordingly the Supreme Court of Appeals reversed the order of the circuit court and directed that the revocation order of the State Board of Dental Examiners be reinstated.—*Huntington Dental Society v. Winton, 40 S. E. (2d) 769 (W. Va., 1946).*

Medical Examinations and Licensure

COMING EXAMINATIONS AND MEETINGS

BOARDS OF MEDICAL EXAMINERS
BOARDS OF EXAMINERS IN THE BASIC SCIENCES

Examinations of the boards of medical examiners and boards of examiners in the basic sciences were published in THE JOURNAL, May 31, page 480.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS: *Parts I and II.* Various centers, June 16-18. *Part III.* Various centers, June, Durham, Oct. 21-23. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia 2.

EXAMINING BOARDS IN SPECIALTIES

AMERICAN BOARD OF ANESTHESIOLOGY: Part II. *Oral.* Cleveland, Oct. 5-11. Sec., Dr. F. M. Wood, 131 Riverside Dr., New York 24.

AMERICAN BOARD OF OPHTHALMOLOGY: Philadelphia, June 15-19. Chicago, October 6-12. Sec., Dr. S. Judd Beach, 704 Congress St., Portland, Me.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Part II. Chicago, Jan. 22-23. Final date for filing applications is Sept. 15, 1947. Sec., Col. F. M. McKeever, 1136 W. Sixth St., Los Angeles 14.

AMERICAN BOARD OF OTOLARYNGOLOGY: Chicago, Oct. 7-11. Sec., Dr. D. M. Lierle, University Hospitals, Iowa City, Ia.

AMERICAN BOARD OF PATHOLOGY: Chicago, Oct. 24-25. Final date for filing application is Sept. 15. Sec., Dr. Robert A. Moore, Euclid Ave. and Kingshighway, St. Louis 10.

AMERICAN BOARD OF PLASTIC SURGERY: Examinations are given in April and November of each year in the home town of applicants. Applications should be sent to Sec., Dr. Louis T. Byars, 508 N. Grand Blvd., St. Louis.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, December. Final date for filing application is Sept. 15. Sec., Dr. Francis J. Braceland, 102-110 Second Ave., S. W., Rochester, Minn.

AMERICAN BOARD OF RADIOLOGY: *Oral,* Boston, Nov. 26-30. Final date for filing application is Aug. 1. Sec., Dr. B. R. Kirklin, 102-110 Second Avenue, S. W., Rochester, Minn.

AMERICAN BOARD OF SURGERY: Final date for filing application for the next written examination is July 1. Sec., Dr. J. Stewart Rodman, 225 S. 15th St., Philadelphia.

AMERICAN BOARD OF UROLOGY: Chicago, February. Final date for filing application is Nov. 1. Sec., Dr. Harry Culver, 1409 Willow St., Minneapolis 4.

Current Medical Literature

AMERICAN

The Association library lends periodicals to members of the Association and to individual subscribers in continental United States and Canada for a period of three days. Three journals may be borrowed at a time. Periodicals are available from 1937 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied with stamps to cover postage (6 cents if one and 18 cents if three periodicals are requested). Periodicals published by the American Medical Association are not available for lending but can be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

American Heart Journal, St. Louis

33:135-268 (Feb.) 1947

Incidence of Acute Coronary Artery Occlusion: Discussion of Factors Responsible for Its Increase. A. M. Master.—p. 135.
*Coarctation of Aorta: Review of 104 Autopsied Cases of "Adult Type," 2 Years of Age or Older. G. H. Reifenstein, S. A. Levine and R. E. Gross.—p. 146.
Treatment of Shock Accompanying Myocardial Infarction. W. B. Schwartz.—p. 169.
Relation Between Size of Heart and Velocity of Blood. G. R. Meneely and J. L. Chesnut.—p. 173.
*Origin of Left Coronary Artery from Pulmonary Artery: Review of Literature and Report of 2 Cases. P. E. Kaunitz.—p. 182.
Plethysmographic Measurement of Blood Flow Through Forepaw During Experimental Shock. B. Kondo, L. N. Katz, J. Meyer and M. R. Malinow.—p. 207.
On Mechanism of Paroxysmal Tachycardia with Rhythmic Alternation in Direction of Ventricular Complexes. W. T. Zimdahl and L. I. Kramer.—p. 218.
Heart in Acute Anterior Poliomyelitis. W. I. Gefter, W. G. Leaman Jr., P. F. Luschesi, Irene E. Maher and M. Dworin.—p. 228.
Lutembacher's Syndrome Complicated by Acute Bacterial Endocarditis: Report of Case Diagnosed During Life. A. J. Geiger and H. C. Anderson.—p. 240.
Tetralogy of Fallot: Account of a Patient with This Condition Surviving Over Forty-Five Years. W. S. Middleton and G. Ritchie.—p. 250.
*Cardiac Asystole in Normal Young Man Following Physical Effort. L. W. Eichna, S. M. Horvath and W. B. Bean.—p. 254.

Coarctation of Aorta.—Reifenstein and his associates review the necropsies in 104 cases of coarctation of the aorta. Although coarctation occasionally was compatible with long life, many died before or during their fortieth year of life, the average age at death being 35 years. The lesion was more common in males. Death was due to incidental causes in 26 per cent, rupture of the aorta (most commonly the ascending portion) in 23 per cent, bacterial endocarditis or aortitis in 22 per cent, congestive failure in 18 per cent and intracranial lesions (exclusive of embolism from bacterial endocarditis) in 11 per cent. Congestive failure was common, but almost all patients who died of this cause had additional cardiovascular burdens, chiefly chronic valvular disease. Bicuspid aortic valves were the commonest congenital anomaly associated with coarctation, being present particularly in cases of bacterial endocarditis. Dilatation of the aorta was common, especially in its ascending portion. The degree of coarctation appeared to be related to the extent of collateral arterial development and the frequency of antemortem diagnosis, which was 40 per cent in this series. The cardinal features of coarctation include hypertension in the upper extremities, lower blood pressure in the legs, collateral arterial anastomoses, the systolic murmur and cardiac hypertrophy. When resection of the area of coarctation with anastomosis of the cut ends of the aorta is not feasible, surgical treatment of the associated hypertension may be of value. Surgery affords the only possible cure of this condition.

Origin of Left Coronary Artery from Pulmonary Artery.—Kaunitz reports clinical and postmortem observations on 2 infants aged 3 and 6 months at death in which the left coronary artery arose from the pulmonary artery. No additional cardiac anomalies were present. In both cases there was excessive dilatation and hypertrophy of the left ventricle, with necrosis, fibrosis, calcification and dilated sinuses in the myocardium. There was musculoelastic thickening of the intima of some of the smaller arteries. Fibroelastic thickening of the endocardium of the left ventricle was present. It is felt that these changes are attributable to chronic anoxia of the portion of the heart supplied by the left coronary artery.

Cardiac Asystole in Normal Young Man.—Eichna and his co-workers report observations on a man aged 22 who had completed basic training and for the preceding four months had engaged in clerical duties. His performance on fitness tests indicated an average physical fitness. On Oct. 19, 1942 he performed the Harvard pack test, became exhausted after four minutes and ten seconds and developed orthostatic hypotension with syncope in the postexertional standing periods. On Oct. 29, 1942 he performed the test for the second time. He had had a mild cold for four days. After two minutes and thirty seconds of effort he was stopped because he began to lag behind the required pace of one step-up per two seconds. During the second erect period the systolic blood pressure fell steadily. The heart rate, instead of accelerating, slowed progressively. Signs of increasing discomfort and incipient syncope developed. After standing for two minutes and forty-five seconds of this period, the blood pressure was 100/90 and the heart rate 99 per minute; the man was in severe distress. Suddenly the heart rate slowed, and before he could be tilted flat he lost consciousness, collapsed and had a short clonic convulsion. After he became supine consciousness rapidly returned and with it apparently complete subjective recovery. Such an asystole raises the question whether sudden death during and after physical exertion may not be the result of a fatal vasovagal syncope.

American Journal of Diseases of Children, Chicago

73:139-256 (Feb.) 1947

*Pulmonary Calcifications and Sensitivity to Histoplasmin in Charleston, S. C. J. I. Waring and D. B. Gregg.—p. 139.
Supplements of Vitamin A and of Carotene During Pregnancy: Their Effect on Levels of Vitamin A and Carotene in Blood of Mother and of Newborn Infant. J. M. Lewis, O. Bodansky, M. C. C. Lillienfeld and H. Schneider.—p. 143.
*Effect of Measles on Nephrotic Syndrome. R. W. Blumberg and H. A. Cassady.—p. 151.
Duplication of Rectum: Enterogenous Cyst or Diverticulum. H. D. Cogswell and H. C. Thompson Jr.—p. 167.
Mirror Movements. Carol K. Smith.—p. 175.

Pulmonary Calcifications and Sensitivity to Histoplasmin.—Waring and Gregg made contact tests with tuberculin and roentgenograms on 494 children of school age in Charleston County, S. C. Among the children in whom the tuberculin reaction was negative 349 had a normal roentgenogram and 8 had pulmonary calcifications. Intradermal tests with histoplasmin could not be made on all the children, but of the 8 with pulmonary calcification and negative reactions to tuberculin each was given an intradermal injection of a 1:100 dilution of histoplasmin and simultaneously an intradermal test with 0.1 mg. of old tuberculin. Only 1 of those whose reaction had been negative to the contact test with tuberculin reacted positively when 0.1 mg. of old tuberculin was injected intradermally. This child also reacted positively to histoplasmin. All 5 who reacted positively to histoplasmin had either lived in or made prolonged visits in Kentucky, Tennessee, Alabama or Mississippi—all within the area of high incidence of sensitivity determined in the study of the U. S. Public Health Service.

Effect of Measles on Nephrotic Syndrome.—Blumberg and Cassady report observations on 5 patients with nephrosis in whom measles developed while they were hospitalized. Two of the 5 patients presented the picture of the nephrotic syndrome with edema, albuminuria, hypoproteinemia, hypoalbuminemia, hypercholesteremia and normal blood pressure, and 3 presented the same picture with a nephritic element, with azotemia and hematuria. In the 2 patients with the uncomplicated nephrotic syndrome the disease subsided. One of these was still well when seen ten months later, while the other relapsed after a remission of three and a half months. The remaining 3 patients experienced transient modification of their disease. Reports of 4 or 5 complete cures of nephrosis by infection with measles were found in the literature.

Annals of Allergy, Minneapolis

5:1-94 (Jan.-Feb.) 1947

Bacterial Allergy. M. Scherago.—p. 1.
Chemical, Physical and Immunologic Properties of Electrophoretically Purified Pollen Extracts. H. A. Abramson.—p. 19.
Report on Standardziation of Dust Extracts: Advisory Council of Standardization Committee. G. E. Rockwell, J. W. Thomas and F. W. Wittich.—p. 27.
Clinical and Comparative Allergy. A. J. Weil.—p. 42.
Hay Fever Plants of Albuquerque, N. M.: Preliminary Report. W. I. Werner, W. G. Reed and E. L. Stormfels.—p. 47.

California Medicine, San Francisco

66:57-106 (Feb.) 1947

Treatment of Bacterial Meningitis with Penicillin, Sulfonamides and Serums. H. Brainerd and Elizabeth Bradley.—p. 57.
Treatment of Pneumococcic Pneumonia with Penicillin and Sulfadiazine. M. F. Collen.—p. 62.
Antibiotics in Treatment of Hemolytic Streptococcus Sore Throat. L. A. Rantz.—p. 66.
Nitrous Oxide and Oxygen Anesthesia with Curare Relaxation. W. Neff, E. C. Mayer and María de la Luz Perales.—p. 67.
Poison Oak: New Antigens and Their Effect on Sensitized Guinea Pigs. E. K. Stratton.—p. 70.
Thiouracil in Thyroid Disease. M. H. Soley.—p. 75.
Improved Forms of Insulin: Advantages of Modified Protamine Zinc Insulin. C. M. MacBryde.—p. 79.
Recent Advances in Neurology. C. D. Aring.—p. 84.

Canadian Journal of Public Health, Toronto

38:67-110 (Feb.) 1947

Economic Background to Public Health During the War. H. L. Robinson.—p. 67.
Outbreak of Paratyphoid B Fever in Nursery of Small Hospital. A. R. Foley.—p. 73.
*Trichinosis in Wild Rats in Toronto. E. Kuitunen-Ekbaum and Dorothy Webster.—p. 76.
Public Health Nursing in County Health Units of Quebec. M. V. LaRose.—p. 79.

Trichinosis in Rats.—Kuitunen-Ekbaum and Webster state that of 650 rats (Rattus norvegicus) caught in Toronto 9 were found to be infected with Trichinella spiralis. These rats, caught at the same time and in the same place, may have had access to infected pork scraps at the nearby restaurant.

Gastroenterology, Baltimore

8:123-250 (Feb.) 1947

Large, Otherwise Normal Gastric Rugae Simulating Tumor of Stomach: Report of 3 Cases. W. E. Ricketts, J. B. Kirsner and W. L. Palmer.—p. 123.
Criteria for Gastroscopic Examination in Army. D. T. Chamberlin.—p. 131.
Amebiasis: Observations in Army General Hospital in India. K. A. Elsom, A. M. Rogers and F. C. Wood.—p. 135.
Observations on Methylene Blue Test for Bile Pigment in Urine. W. F. Lipp and A. R. Lemmer.—p. 154.
Organization of Gastrointestinal Service in Army During Second World War: Personal Observations and Impressions. J. L. Kantor.—p. 157.
Gastric Surgery: Review of Literature for 1945. S. F. Marshall and I. C. Schmidt.—p. 160.
Clinical and Pathologic Findings in Prolonged Hepatitis. C. A. Flood and E. M. James.—p. 175.
Laënnec's Cirrhosis: Effect of Therapy in Increasing Life Expectancy. S. Kimball and W. A. C. Chapple.—p. 185.
Anion Exchange Resin and Peptic Ulcer Pain. Mary M. Spears and Mildred C. J. Pfeiffer.—p. 191.
Polyamine Formaldehyde Resin: III. Chronic Toxicity Experiment in Rats. H. L. Segal, H. C. Hodge, J. S. Watson Jr. and Hilda Coates.—p. 199.
Treatment of Peptic Ulcer with Anion Exchange Resins: Preliminary Report. M. Kraemer and D. J. Lehman Jr.—p. 202.
Report of Preliminary Clinical Trial of Dibutoline, A New Antispasmotic Drug. G. M. Cummins, G. H. Marquardt and M. I. Grossman.—p. 205.
*Effect of Cigaret Smoking on Malnutrition and Digestion. A. E. Koehler, Elsie Hill and N. Marsh.—p. 208.

Cigaret Smoking in Malnutrition and Digestion.—Koehler and his associates studied the effect of cigaret smoking on the flow of digestive secretions. Smoking of three cigarets in succession did not significantly influence the rate of flow or the concentration of amylolytic, proteolytic and lipolytic enzymes of the duodenal secretions as obtained by transduodenal drainage. Thus, although excessive cigaret smoking may be a dominant factor in the prevention of weight gain in underweight subjects on an adequate dietary program, the adverse effect is not due to a diminution of the secretions of the pancreatic ferments. The excessive smokers who were underweight all manifested a certain indifference to foods frequently bordering on a mild anorexia. Cessation of smoking definitely improved the appetite in this group, and it is believed that improved appetite and increased food intake were the main cause of weight gain.

Journal of Aviation Medicine, St. Paul

18:1-108 (Feb.) 1947

Electrocardiographic Changes in Fulminating Anoxia. B. G. King and Margaret Henson.—p. 3.
Motivations of the Flier and His Reactions to Stresses of Flight. R. C. Anderson.—p. 18.
Study of Relation Between Minnesota Multiphasic Personality Inventory Scores and "Pilot Error" in Aircraft Accidents. W. D. O'Gorman and E. C. Kunkle.—p. 31.
*Auditory Deterioration in Airline Pilots. H. Graebner.—p. 39.
Aerotitis Media: Brief Presentation of Its Symptomatology, Prevention and Treatment. C. W. Shilling, H. L. Haines, J. D. Harris and W. J. Kelly.—p. 48.
Aviation Medicine and Physical Standards for Airmen. W. R. Stovall.—p. 56.
Notes on Japanese Aviation Medicine and Research. N. Mokmut.—p. 64.
Aero Medical Experiences in China. T. C. Gentry.—p. 69.
Physiology of Pressure Breathing: Brief Review of Its Present Status. A. L. Barach, W. O. Fenn, E. B. Ferris and C. F. Schmidt.—p. 73.
Studies on Altitude Decompression Sickness: IV. Attempts to Avoid Decompression Sickness by Selection of Resistant Personnel. J. S. Gray, H. S. Wigodsky, R. L. Masland and E. L. Green.—p. 88.
Effect of Positive Radial Acceleration on Intrarectal Pressure. R. F. Rushmer.—p. 96.
Effect of Binding of Abdomen and Thorax on Pulmonary Lesions Produced by Explosive Decompression. W. V. Whitehorn, A. Lein and F. A. Hitchcock.—p. 102.

Auditory Deterioration in Airline Pilots.—Graebner presents a survey of the audiometric findings of a group of 449 airline pilots of various ages and of various air hours' experience. The pilot under survey was checked on chronological age in years of life and physiologic age in air hours flown. All tracings were made on one standardized audiometer in steps of 5 decibels to determine the threshold of sound perception in each ear over the tone range from 128 to 11,584 cycles per second. Graphs showing the results of the tests give the general impression of definite causal relation of professional aviation and auditory deterioration. Clinical experience suggests cochlear damage due to acoustic trauma. Normal function of the conductive apparatus is corroborated by tuning fork tests. Tinnitus was conspicuous by its absence. All findings suggest a functional deterioration rather than a disease process. Deterioration in important spectrums, such as range stations, fan markers and outer and inner markers, would create difficulties in making instrument approaches. The constant radio signal of range stations may cause auditory fatigue. Airline flight surgeons should determine the threshold of hearing in these spectrums and to that end the standard audiometer should be equipped with frequencies to cover these tones that are broadcast for the guidance of pilots in flight.

Journal of Bacteriology, Baltimore

53:129-256 (Feb.) 1947. Partial Index

Egg Yolk Plate Reaction for Presumptive Diagnosis of Clostridium Sporogenes and Certain Species of Gangrene and Botulinum Groups. L. S. McClung and Ruth Toabe.—p. 139.
Ultraviolet Irradiation of Bacteriophage During Intracellular Growth. S. E. Luria and R. Latarjet.—p. 149.
Effects of X-Rays on Strain of Eberthella Typhosa. T. H. Grainger Jr.—p. 165.
Intracellular Bacteroids in Cockroach (Periplaneta Americana Linn.) H. T. Gier.—p. 173.
Comparative Studies of Enterococci and Escherichia Coli as Indexes of Pollution. M. Ostrolenk, N. Kramer and R. C. Cleverdon.—p. 197.
Studies on Some Biologic Aspects of Dihydrostreptomycin. R. Donovick and G. Rake.—p. 205.
Practical Media and Control Measures for Producing Highly Toxic Cultures of Clostridium Botulinum, Type A. K. H. Lewis and E. V. Hill.—p. 213.
Relation of Natural Variation in Penicillium Notatum to Yield of Penicillin in Surface Culture. Alma J. Whiffen and G. M. Savage.—p. 231.
Studies on Penicillinase: III. Effect of Antipenicillinase on Penicillin Resistant Organisms. R. D. Housewright and R. J. Henry.—p. 241.

Journal of Experimental Medicine, New York

86:217-328 (March) 1947

Quantitative Study of Collagen Content in Experimental Cirrhosis. T. G. Morrione.—p. 217.

Antibody Formation in Men Following Injection of Four Type Specific Polysaccharides of Pneumococcus. M. Heidelberger, C. M. MacLeod, R. G. Hodges, W. G. Bernhard and Marie M. di Lapi.—p. 227.

Significance of Lesions in Peripheral Ganglia in Chimpanzee and Human Poliomyelitis. D. Bodian and H. A. Howe.—p. 231.

Plasma Protein and Hemoglobin Production: Deletion of Individual Amino Acids from Growth Mixture of Ten Essential Amino Acids. Significant Changes in Urinary Nitrogen. Frieda S. Robscheit-Robbins, L. L. Miller and G. H. Whipple.—p. 243.

Anemia and Hypoproteinemia: Weight Maintenance Effected by Food Proteins but Not by Mixtures of Pure Amino Acids. L. L. Miller, Frieda S. Robscheit-Robbins and G. H. Whipple.—p. 267.

Raiding of Body Tissue Protein to Form Plasma Protein and Hemoglobin: What is Premortal Rise of Urinary Nitrogen? G. H. Whipple, L. L. Miller and Frieda S. Robscheit-Robbins.—p. 277.

Active Immunity to Poliomyelitis in Chimpanzees Following Subclinical Infection. J. L. Melnick and Dorothy M. Horstmann.—p. 287.

Inactive Precursor of Streptococcal Proteinase. S. D. Elliott and V. P. Dole.—p. 305.

Experimental Study of Shock Waves Resulting from Impact of High Velocity Missiles on Animal Tissues. E. N. Harvey and J. H. McMillen.—p. 321.

Journal of Investigative Dermatology, Baltimore

8:1-52 (Jan.) 1947. Partial Index

Effects of *p*H on Antifungal Activity of Fatty Acids and Other Agents: Preliminary Report. E. J. Foley, F. Herrmann and S. W. Lee.—p. 1.

Penicillin and Sweat. T. Cornbleet, M. Novak and H. C. Schorr.—p. 9.

Studies of Effects of Glycerite of Hydrogen Peroxide on Infections of Skin and Mucous Membranes: Preliminary Report. F. Thurmon and E. A. Brown.—p. 11.

Staphylococci and Hemolytic Streptococci from Normal Skin and from Cutaneous Infections. G. C. Rebell.—p. 13.

New Surface Active Antibiotics. H. H. Anderson with assistance of S. C. Wong.—p. 25.

Studies on Adherence of Epidermis to Corium. Z. Felsher.—p. 35.

Journal of Urology, Baltimore

57:427-618 (March) 1947. Partial Index

Familial Eunuchoidism: Laurence-Moon-Biedl Syndrome. A. A. Roth.—p. 427.

Adenoma of Kidney. A. B. Cecil.—p. 446.

Unilateral Renal Tuberculosis: Management of Nephrectomized Patient; Review of 98 Cases. C. P. Mathé.—p. 451.

Large Hydronephrosis of True Supernumerary Kidney. S. K. Bacon.—p. 459.

Hypertension Associated with Solitary Renal Cyst: Report of 2 Cases. H. A. R. Kreutzmann.—p. 467.

Stones in Ureter: Their Extraction by Looped Catheter. M. Ellik.—p. 473.

Misinterpretations of Enlarged Prostates Gained Through Cystoscopy. W. Stegeman.—p. 479.

*Infarct of Prostate. W. G. Rogers.—p. 484.

*Carcinoma of Prostate: Simultaneous Occurrence in Identical Twins. G. M. Pister.—p. 488.

Care of Paraplegic's Urinary Tract. M. H. Nourse and H. C. Bumpus.—p. 495.

Sperm Invasion of Epididymis. J. Steinberg and R. Straus.—p. 498.

Aneurysms Involving Urinary Tract. J. R. Dillon and G. L. Torassa.—p. 504.

Azoospermia: Analysis of 146 Cases. L. Michelson.—p. 512.

Solitary Polycystic Kidney and Successful Pregnancy. D. W. Branham.—p. 519.

Management of Ureteropelvic Juncture Obstruction: Translumbar Aortography and Adjunct. A. K. Doss.—p. 521.

Cancer Cells in Prostatic Secretions. P. A. Herbut and E. N. Lubin.—p. 542.

*Streptomycin Therapy in Urinary Tract Infections. A. M. Kleinman, T. P. Shearer and H. Sprinz.—p. 599.

Infarct of Prostate.—Rogers reports 2 cases of infarct of the prostate. Infarct of a hypertrophied prostate may occur as a result of interference with the blood circulation. These vascular changes are most often the result of trauma from transurethral procedures. The symptoms of prostatic infarction are largely those of urinary obstruction which results from the swelling and increase in the volume of the gland. When healing takes place a certain amount of contraction occurs and the volume is decreased. As a result of this decrease in volume, obstructive symptoms may be less severe than before the infarct developed. This may account for some of the results following bizarre methods of treatment. Diagnosis of infarction may be made clinically or cystoscopically on occasion, but it usually depends on examination of the tissue removed at operation or necropsy. Correct diagnosis is important in order to differentiate the condition from carcinoma.

Carcinoma of Prostate in Identical Twins.—Fister reports the histories of twins who developed simultaneously adenocarcinoma of the prostate. Both had hypertension, obesity and diabetes. Transurethral prostatic resection was performed in each case at an interval of one month. Diethylstilbestrol therapy and orchiectomy were carried out in case 1, in which the cancer was apparently more advanced and symptoms of metastasis evident. This treatment was followed by reduction in size and hardness of the gland, decrease in pain and improvement in general health. Both twins are doing fairly well two years after resection. Future study of these patients will be of interest, as one has been castrated and the other has not.

Streptomycin in Urinary Tract Infections.—Kleinman and his associates report experiences with streptomycin therapy of nonvenereal urinary tract infections in 18 patients. Seventeen of the 18 had neurogenic bladders resulting from spinal cord injuries. A preliminary study of the bacterial flora cultured from the infected urinary tracts of 42 similar patients showed that the organisms occurred in the following order of frequency: Streptococcus nonhemolyticus, Bacillus proteus, Aerobacter aerogenes, Escherichia coli, Klebsiella pneumoniae, Pseudomonas aeruginosa, Staphylococcus aureus and Streptococcus hemolyticus. All but the last 2 organisms are known to be resistant to penicillin and the sulfonamides. With dosages of 3,000,000 units of streptomycin a day for three days prompt sterilization of the urine was obtained, but only temporarily. With dosages of 1,200,000 units a day for three days the results were generally poor, except in the 1 patient who did not have a neurogenic bladder. The failure of streptomycin therapy of urinary tract infections in paraplegic patients with neurogenic bladders is attributed to the presence of one or more of the following conditions: persistent suprapubic fistulas, urinary calculi, residual urine or repeated catheterization, or inadequate dosage.

New England Journal of Medicine, Boston

236:341-382 (March 6) 1947

Military Surgery in World War II: Backward Glance and a Forward Look. M. E. DeBakey.—p. 341.

*Protein Nutrition: Therapeutic Use of Digest of Liver Protein, Especially in Patients with Cirrhosis of Liver. Jessica H. Lewis, F. H. L. Taylor and C. S. Davidson, with assistance of Margaret A. Adams, Jean V. Harrison and Mary A. Maloney.—p. 351.

Congenital Dislocation of Knee: Report of Case. R. W. Provenzano.—p. 360.

Synthetic Plastic Materials in Surgery. F. D. Ingraham, E. Alexander Jr. and D. D. Matson.—p. 362.

Subdiaphragmatic and Subhepatic Abscess, Secondary to Cholecystectomy: Acute Lipoid Nephrosis.—p. 368.

Chronic Pancreatitis, with Extension to Wall of Stomach.—p. 371.

Protein Nutrition with Digest of Liver Protein.—Lewis and her associates administered a partial enzymatic digest of liver protein as a food supplement to 65 patients. The digest contained 60 per cent protein in addition to relatively large quantities of vitamin B complex. The taste of the liver protein digest is somewhat disagreeable. A laxative effect was observed in some patients. The liver protein digest supported positive nitrogen balance or nitrogen equilibrium when given as the chief source of protein to 5 normal subjects and 4 malnourished patients. Plasma protein regeneration was demonstrated in 1 patient with nephrosis and in 1 with uncomplicated malnutrition, as well as in several patients with cirrhosis of the liver. The results of the treatment of 19 patients with portal cirrhosis was at least as satisfactory as those attained with other means of supplying the many nutrients that have recently been advocated for the treatment of this disease. The recovery of 5 patients with infectious hepatitis progressed satisfactorily. The liver protein digest proved to be an adequate protein supplement for 4 of 5 patients with severe thermal burns. The digest was given to 3 patients with peptic ulcers, with excellent results. It proved satisfactory in 3 patients with alcoholic peripheral neuritis. Great improvement was observed in 10 of 14 patients with malnourishment of various causes.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Biochemical Journal, London

41:1-138 (No. 1) 1947. Partial Index

Metabolic Processes in Gastric Mucosa. C. Lutwak-Mann.—p. 19.
Determination of Iron in Biologic Material. A. J. Woiwod.—p. 39.
*British Antilewisite: 4. Antidotal Effects Against Therapeutic Arsenicals. L. A. Stocken, R. H. S. Thompson and V. P. Whittaker.—p. 47.
Experimental Investigation of "Ring Hypothesis" of Arsenical Toxicity. V. P. Whittaker.—p. 56.
Studies in Vitamin A: 1. Chromatographic Method for Separating Free and Esterified Vitamin A. J. Glover, T. W. Goodwin and R. A. Morton.—p. 94.
Intercellular Hormones. A. M. Webb and J. R. Loofbourow.—p. 114.

Antidotal Effects of BAL Against Therapeutic Arsenicals.—Stocken and his associates say that BAL has been tested as an antidote to the toxic action of mapharside, neoarsphenamine and arsphenamine. Through use of the pyruvate oxidase system of brain it has been shown that BAL can protect effectively against these three arsenicals and can also bring about a significant degree of reactivation of the already poisoned enzyme system. BAL is also effective in bringing about the survival of rats after the injection of lethal doses of mapharside or neoarsphenamine.

British Journal of Ophthalmology, London

31:129-192 (March) 1947

Comparative Visual Acuity and Ease of Reading in White and Colored Light. L. C. Martin and R. W. B. Pearse.—p. 129.
Allergy to Endogenous Hormones as Cause of Keratitis Rosacea. B. Zonder, J. Landau and Y. M. Bromberg.—p. 145.
Observations on Symptomatology and Diagnosis of Cases of Proptosis. H. Bey.—p. 155.
Influence of Intraocular Pressure on Rate of Drainage of Aqueous Humor: Stabilization of Intraocular Pressure or of Aqueous Flow? E. H. Bárány.—p. 160.
Case of Bilateral Genuine Iris Atrophy. Ida Cyukrász.—p. 176.

Indian Journal of Medical Research, Calcutta

34:207-328 (Oct.) 1946. Partial Index

*Studies on Cultivation of Etiologic Agent of Rabies in Vitro and Its Nature. N. Veeraraghavan.—p. 207.
*Studies on Antirabic Immunization with Culture Vaccine. N. Veeraraghavan.—p. 225.
Action of Penicillin on Mycobacterium Leprae Muris. Dharmendra and N. Mukherjee.—p. 237.
Level of Fat Intake and Composition of Serum Lipoids. N. G. Nhavi and V. N. Patwardhan.—p. 257.
Effect of Different Diets and of Iron Medication on Nutritional Anemia of Indian Army Recruits. M. Hynes, M. Ishaq and O. P. Verma.—p. 273.

Cultivation of Etiologic Agent of Rabies in Vitro.—Veeraraghavan describes a simple medium which contains steamed sheep brain extract, sheep serum, aminoacetic acid (glycine) and peptone, which he used for the cultivation of rabies fixed virus in vitro. He found that with this medium it is possible to obtain at least five times the maximum concentration of virus obtained in the brains of infected sheep used in the manufacture of antirabic vaccine. Cultivation under strict anaerobic conditions gives better results than under aerobic conditions. The successful cultivation of the etiologic agent of rabies in a cell free medium proves that it is not a virus in the accepted sense of the term. Protection afforded by culture vaccine the virus content of which is adjusted to be equal to that of 5 per cent phenol vaccine compares favorably with that obtained with phenol vaccine.

Antirabic Immunization with Culture Vaccine.—Veeraraghavan stresses that his culture vaccine is superior to Semple's 5 per cent vaccine, which is used in India. The virus content of the vaccine can be accurately determined. It is 100 times as high as that present in 5 per cent phenol vaccine. It is free from gross nerve tissue. It is apparently free from toxic effects. Assuming that five times the quantity of virus ordinarily used in treatment with phenol vaccine is necessary for producing adequate immunity in man, it should be possible to give with 7 cc. of undiluted culture vaccine five times the virus content present in 140 cc. of phenol vaccine.

Medicina, Cir., Farm., Rio de Janeiro

129:1-48 (Jan.) 1947. Partial Index

*Intrapericardial Penicillin. H. Franco.—p. 41.

Intrapericardial Penicillin.—A man aged 22 presented symptoms of pericardial effusion complicating influenza. Sulfanilamide and intramuscular injections of penicillin were without effect. Aspiration of pus and instillation of 50,000 units of penicillin in isotonic solution of sodium chloride into the pericardial sac performed four times at intervals of four days resulted in recovery. Klebsiella pneumoniae was identified in cultures of the pus. The organism could no longer be demonstrated in the pus after the second injection. Attention is directed to the fact that the bacillus was regarded as being resistant to penicillin, whereas the results in this case suggest that it is not.

Nederlandsch Tijdschrift v. Geneeskunde, Amsterdam

91:241-296 (Feb. 1) 1947. Partial Index

Skin Eruptions in Gonorrhea. J. R. Prakken.—p. 243.
*Measles Pneumonia in Children Repatriated from India: Isolation of Measles Virus and Hemophilus Influenzae from Lungs. N. Lubsen and J. D. Verlinde.—p. 250.
Pellagra. O. L. E. de Raadt.—p. 254.
*Castration in Treatment of Psychopathic Criminals. F. Hartsuiker.—p. 263.

Measles Pneumonia in Children Returning from India.—Lubsen and Verlinde review observations on children who developed pneumonia following measles contracted while on board ship returning from India. In 1 child on whom a postmortem was done seventeen days after the onset of the measles exanthem laryngitis, tracheitis and mucopurulent bronchitis were found together with an extensive bronchopneumonia. One of the authors was able to isolate from the lungs a virus that was almost certainly identical with a virus isolated from the blood of a measles patient on the first day of the exanthem. In the lungs Hemophilus influenzae and anhemolytic streptococci were also found. This explains the fact that these patients did not react favorably to penicillin and sulfathiazole.

Castration in Treatment of Psychopathic Criminals.—Hartsuiker says that since 1938 certain groups of sexual delinquents have been treated in the Netherlands by removal of the testes. The Justice Department of the Netherlands recommends that the operation be performed only on men who are not less than 25 years old and only with the consent of the patient. The author reviews observations on 88 criminals who were so treated and says that the results so far have been generally favorable. He discusses the physical and psychic consequences of castration and demonstrates with the aid of a case history that libido and potency are not linked to the secretion of the testicular hormone.

Acta Radiologica, Stockholm

27:569-666 (Dec. 20) 1946

Roentgen Treatment of Tuberculous Infected Guinea Pigs. R. Steinert and J. Cammermeyer.—p. 573.
Roentgen Diagnosis of Arteriovenous Aneurysm of Lung. E. Lindgren.—p. 585.
*Incipient Stages of Porcelain Silicosis. P. Eskildsen and P. F. Møller.—p. 601.
Arthritis Mutilans. B. Nielsen and E. Snorrason.—p. 607.
Pyeloscopy: Evaluation of the Method. H. Salinger and F. Saalberg.—p. 617.
Vertebra Plana in Lipoidosis (Hand-Schüller-Christian): Contribution to Etiology of Aseptic Necrosis of Bone. J. Torgersen.—p. 638.
Technic of High Retrograde Arteriography in Circulatory Disturbances of Lower Limbs. M. Sulamaa.—p. 643.
Action of Gravity on Visceral Cavity. F. Polgar.—p. 647.

Porcelain Silicosis.—Eskildsen and Møller say that an investigation was begun in 1941 to control the efficacy of the improvements in the dust prophylaxis among Danish porcelain workers introduced in 1933. Observations were made on 39 young workers, all of whom were subjected to two x-ray examinations. The diagnosis became certain only during the second stage of silicosis, the peribronchial perivascular type, with gradual increase of the interstitial extension of the fibrosis and comparatively rare combination with nodular changes. The incipient stage was discovered at the first x-ray examination in 15 cases. In 6 of these the diagnosis of silicosis could not be maintained with certainty at the second, although 5 of them had continued their work in the porcelain industry for as long as twelve years.

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Book Notices

Injuries of the Knee Joint. By I. S. Smillie, O.B.E., M.B., F.R.C.S., Surgeon-in-Charge, Orthopaedic Hospital, Larbert, Stirlingshire (Scottish E. M. S.). Cloth. Price, $9. Pp. 320, with 350 illustrations. William Wood and Company, Mt. Royal & Guilford Aves., Baltimore 2, 1946.

This is one of the best books on injuries of the knee that has been published. The author has had vast experience, having treated "2,235 cases in five years in the hospital" and "in addition 2,700 internal derangements in service personnel, mining and industrial workers were referred for consultation during the same period." This work was done in the Orthopedic Unit of the Base Hospital set up by the Department of Health for Scotland in 1940.

The book starts out with a comparative anatomy description of knee action and an explanation of quadriceps insufficiency which the author ascribes in part as due to the late acquisition in man's evolution from a quadruped to the erect posture. When injury occurs the lately acquired function of supporting orthograde posture easily disappears. The quadriceps and especially the vastus medialis wastes quickly. This inhibition should be overcome by early active non-weight bearing exercises which do not produce movement of the joint. Later graded exercises, even with weights, should be used. The book goes on to deal with synovitis, hemarthrosis and the necessity of early aspiration in case of swelling of the joint. The next four chapters take up in detail the surgical anatomy and physiology of the menisci and mechanism of their injuries, surgical pathology, clinical features of their internal derangment and the treatment, after-treatment and complications of injuries to the menisci. The necessity for complete removal of an injured meniscus is emphasized. The author illustrates special knives with a cutting edge on the end. The knives should be kept sharp. An elaborate system of postoperative treatment with gradually increasing exercise should return the patient to A I category in rarely less than twelve weeks. This seems like a safe opinion.

Complications of pain; hemarthrosis necessitating aspiration; sepsis, usually a result of faulty aseptic technic, treated by sulfonamide drugs—the author not having had opportunity to test penicillin but which since has proved efficacious elsewhere; aspiration done and opening of joints widely avoided if possible; persistent effusion; neuroma of infrapatellar branch of saphenous nerve, excised. Injuries of the ligaments are diagnosed and treated conservatively or by operation. The latter shows several technics, but the end results are not guaranteed, and no conclusion has been reached as yet about them. Injuries of the extensor apparatus are dealt with. In fractured patella the smaller fragment may be removed. Fractures of the tibia and femur require careful fixation of fragments in anatomic position, often requiring operation. The last chapters deal with foreign bodies, wounds of the joints and finally the stiff joint requiring prophylactic early motion and at worst manipulation under anesthesia or operative treatment. The book is well prepared and edited. The excellent illustrations add much to its value, and make this volume an unusually meritorious contribution.

Cardiovascular Diseases. By David Scherf, M.D., F.A.C.P., Associate Professor of Medicine, New York Medical College, Flower and Fifth Avenue Hospitals, New York, and Lian J. Boyd, M.D., F.A.C.P., Professor of Medicine, New York Medical College, Flower and Fifth Avenue Hospitals. [Based on previous editions of book of same title.] Fabrikoid. Price, $10. Pp. 478, with 56 illustrations. J. B. Lippincott Co., 227 S. Sixth St., Philadelphia 5, 1947.

This is in reality a new edition which has been completely rewritten to make the coverage of cardiovascular diseases more complete. The topic of rheumatic fever has been greatly expanded. Newer advances in diagnosis and in treatment are introduced. The material covered lives up to the title in that the authors are not concerned only with diseases of the heart but give proper emphasis to the diseases of the blood vessels.

In dealing with the clinical aspects of cardiovascular diseases the authors are at their best, although at times the old tradition of the Viennese school in which the senior author grew up is given undue prominence. There is also too much concern with the problem of priority. However, the American reader will find adequate coverage and proper reference to the earlier European work which might otherwise be forgotten. This book shares with many other clinical textbooks, and perhaps more so than others, the tendency to explain mechanisms on physiologic grounds which are often superficial and contradictory to the present knowledge of normal and pathologic physiology. In this regard the volume is weak. It is regrettable also that picturesque language is at times introduced which is out of place with the more sober general context.

This book can be recommended for the many practical hints which it contains, for its summary of European work, for its refreshingly different handling of this subject and for its proper balance in dealing with the various aspects of cardiovascular diseases. The format and illustrations are on the whole excellent, although on occasion imperfections of the type appear.

Outlines of Internal Medicine. Parts I-V. Edited by C. J. Watson, M.D., Head, Department of Medicine, University of Minnesota, Minneapolis. Fifth edition. Paper. Looseleaf. Price, 50 per set. Pp. 161; 102; 112; 61; 95, with 12 illustrations. W. C. Brown Co., 973 Main St., Dubuque, Iowa, 1946.

These outlines, prepared in five parts, present to the student a succinct fund of information relative to the bacteriology, physiology, diagnosis and treatment of disease. Part I includes infectious diseases, allergies and arthritis. Part II covers diseases of the blood, liver and biliary tract, pancreas and intestinal tract. Part III deals with the heart. Part IV is concerned with deficiency and metabolic diseases, while part V is devoted entirely to clinical chemistry and microscopy. In all sections the material is carefully compiled and well indexed, and the contents are largely confined to noncontroversial information. There is included enough history to interest the student, and a well selected bibliography follows each chapter. The material as organized should stimulate the student to pursue on his own a program of medical instruction which is much more valuable than attempting to cover the material in a series of didactic lectures with page assignments in a standard textbook. In the bibliography are included references to many original articles dealing with the subject under consideration. All in all, it is a most satisfactory compilation of essential information and is recommended to all students of medicine, including those who have graduated.

What Is Heart Disease: A Handbook for the Heart Patient. By William Hyatt Gordon, M.D., F.A.C.P., Head of Medical Section, Lubbock Memorial Hospital and Clinic, Lubbock, Texas. Cloth. Price, $2.50. Pp. 134, with 10 illustrations. Grune & Stratton, 381 4th Ave., New York 16, 1946.

This small book is written at a mutual intellectual level for the physician and his patient who is afflicted with heart disease. Most busy physicians are unable to afford sufficient time to outline the reasons for medical management of a particular cardiac problem to the complete satisfaction of the patient. This the author attempts to do by first explaining that heart disease does not signify a single rapidly fatal process but that heart disease varies greatly in its gravity, usually has a chronic course and need not be cause for invalidism. The book attempts to aid the patient by first describing the anatomy and the physiology of the normal heart and its amazing ability to endure added effort and handicaps.

The author then discusses the pathology and the abnormal physiology of diseases of coronary vessels, disorders of the heart valves, diseases of the heart muscle and abnormal heart beats. This is followed by a section on the treatment of heart disease. Many incorrect ideas and much unfortunate knowledge possessed by the average person are exposed and corrected throughout the entire book.

A splendid addition is the last chapter, entitled "Symptoms Erroneously Thought to Indicate Heart Disease." Functional disorders frequently force apprehensive patients to go from physician to physician in an attempt to obtain a diagnosis of organic heart disease. The author advises them to consult a competent physician and to accept his advice, for "there is nothing more tragic than needless invalidism caused by a nonexistent disease."

This book may be considered a good contribution for the layman. It is written in simple, understandable language, but because of its brevity questions will be left in the minds of many persons who read it as a guide for a specific cardiac disorder.

On the Morphology of Blood and Bone-Marrow in Thyrotoxicosis. By O. Ehström. Inaugural Dissertation, II Surgical University Clinic, Helsingfors. Acta chirurgica Scandinavica, Vol. XCIV. Supplementum 114. Paper. Pp. 188. Helsingfors, 1946.

The author reviews the earlier literature and then reports his own investigation on the peripheral blood and bone marrow findings in thyrotoxicosis. He obtained the bone marrow by sternal aspiration. A control group of 24 surgical patients were studied, excluding those with diseases which might influence the blood or bone marrow characteristically. Twenty-six patients with nontoxic goiter were next studied to compare with 33 patients with thyrotoxicosis. The immediate postoperative findings in the nontoxic group of cases were a proportionate decrease in erythrocytes and hemoglobin and a polymorphonuclear leukocytosis in the peripheral blood. There was often a thrombocytosis and reticulocytosis also. The white cells of the marrow showed little alteration, while the decrease in normoblasts was the most regular and conspicuous feature. Fifty per cent of the patients examined at follow-up examination three months later showed improvement in the red blood cell values but not quite to normal, a distinct leukopenia due to a decreased number of granulocytes and an improvement in erythropoiesis in the marrow.

Comparison of the peripheral blood and marrow of patients of varying degrees of thyrotoxicosis offered little information. There was a tendency toward macrocytosis. Low values for leukocytes were found more commonly in this group than in the controls and some showed slight leukopenia. Granulocytes were low in relative and absolute values, while the lymphocytes were often increased. A higher degree of lymphocytosis was found in the more severe cases of thyrotoxicosis. The sternal marrow showed a shift of the granulocytes to the left. No increase in lymphocytes in the marrow was revealed when compared with the control cases. The changes in the marrow and peripheral blood were inconstant, and the changes enumerated were characterized as tendencies. The patients treated preoperatively with iodine showed an increase in leukocytes, mainly granulocytes, in the majority of cases. The lymphocyte change was equivocal. The shift of granulocytes to the left in the marrow receded on iodine therapy, depending on the duration of the therapy, but did not reach the control values.

Changes observed in 5 patients treated preoperatively with thiouracil were improvement in red blood cell counts and hemoglobin where they were formerly reduced; decreased white blood cell count due mainly to a decrease in granulocytes, shift of the granulocytes in the bone marrow to the right where formerly there was a shift to the left, and an increase in adult forms of nucleated red cells. In five to eight days postoperatively a decrease in red cells and hemoglobin occurred similar to the immediate postoperative findings in the nontoxic group. Increase in granulocytes was more obvious than in the nontoxic group. The findings in the bone marrow were comparable to those in the nontoxic group and consisted mainly in increased erythropoiesis. In the three month postoperative follow-up the erythrocyte and hemoglobin values did not reach the preoperative values; low values were found for the leukocytes in one third of the cases; cases which previously showed an absolute lymphocytosis were reduced to relative values; the granulocytes showed no constant pattern. The bone marrow showed a moderate shift to the right. There was less active erythropoiesis at normoblastic levels than before treatment.

In his study of the correlation of lymphocytosis in the blood and lymphocytic infiltrates in the surgically removed thyroid glands, the author constantly found that lymphocytic infiltration in the goiter tissue occurred, especially in the presence of high grade thyrotoxicosis, where an absolute lymphocytosis occurred in the peripheral blood.

The author concluded that patients with nontoxic goiter do not show any characteristic changes. In thyrotoxicosis the bone marrow shows evidence of a slight maturation arrest, possibly in response to the increased metabolic rate. When the metabolic rate was reduced by iodine, thiouracil or surgery, the shift of the bone marrow elements to the left was decreased and this is simultaneously reflected in the peripheral blood. The danger of granulocytopenia after thiouracil is stressed especially in thyrotoxic states in which the myeloid tissue is already disturbed. While the author was not able to account for the lymphocytosis in the peripheral blood in thyrotoxic states, he was inclined to explain it on the basis of lymphocytic infiltration of the thyroid gland. The variation of the changes in the blood or bone marrow was not considered to be of great diagnostic or prognostic importance in thyrotoxicosis.

In this thorough and objective survey on peripheral blood and bone marrow findings in thyrotoxicosis, it is unfortunate that the recent literature was not available because of wartime conditions. The publications of Renzi and Lenzi in 1939 and the article of Robert Jones in 1940 should have been available, however. Jones found a constant myeloid hyperplasia of the aspirated sternal bone marrow in hyperthyroidism that was not reflected in the peripheral blood. Nevertheless the material presented in this monograph was well controlled and adequately studied. The author's conservatism in drawing conclusions concerning the diagnostic and prognostic value of peripheral blood and bone marrow findings is in keeping with sound scientific thinking. The monograph is a definite contribution to the field of hematology and internal medicine and represents the most comprehensive and controlled study in this field.

Diagnostic électrocardiographique. Par André Jouve, Jacques Bonan, chef de Clinique à la Faculté de médecine de Marseille, et Jean Pierron, chef de Clinique à la Faculté de médecine de Marseille, Marseille. Préface du Professeur Ch. Laubry. Paper. Price, 800 francs. Pp. 302, with 217 illustrations. Masson & Cie, 120 Boulevard Saint-Germain, Paris, 6e, 1946.

This textbook on electrocardiography is written with considerable knowledge of the entire subject, and the authors are familiar with the American literature and frequently refer to it. The book is divided into four parts, covering (1) the theoretical basis and technic, (2) the normal electrocardiogram, (3) the pathologic electrocardiogram and (4) the clinical application of electrocardiography. The classification of abnormal electrocardiograms is unorthodox and therefore confusing to beginners in this country, who will follow the American tradition. The diagnostic importance of chest leads is stressed. However, a polarity is used the reverse of that now universally accepted in English speaking countries following the recommendation of the official heart associations of Great Britain and America. It is to be hoped that the French Société de Cardiologie will also adopt the newer method of recording chest leads, so that the nomenclature will become uniform.

Most of the illustrations are well reproduced. It is regrettable that in a book which gives so much detailed information no illustrations are available to demonstrate the effect of acute cor pulmonale and of digitalis on the electrocardiographic contour. It is regrettable also that the effects of excess digitalis on heart rhythm are not illustrated. Some discussion of the effects of low calcium and high potassium in the blood should have been included. No illustrations of the effects of digitalis and of quinidine on auricular fibrillation and flutter are shown. The electrocardiographic modifications reflecting left ventricular preponderance or predominance, the latter apparently being the French term used for "strain," are discussed together with deviation of the electrical axis; no mention is made of the pattern of left heart strain occurring in the absence of abnormal deviation of the electrical axis.

A number of errors in interpreting arrhythmias appear. For example, no distinction is made between the normal refractory phase giving rise to auriculoventricular dissociation and the abnormal depression of auriculoventricular conduction giving rise to auriculoventricular block. Accordingly the authors fail to see how the classic concept of auriculoventricular conduction—in contrast to that of the French school led by Geraudél—can explain the occurrence of ventricular capture in auriculoventricular dissociation. A rather confused definition is given of interference—dissociation, misquoting both Mobitz, and Wenckebach and Winterberg. The disturbances termed "isorhythmic dissociation" and "sinus bradycardia with permanent idioventricular rhythm" do not necessarily represent definite entities and are therefore unnecessary.

This textbook offers a new classification of the disturbances of impulse formation and impulse conduction which may be interesting to the advanced student but it can only be confusing to the beginner. The American reader will welcome the well chosen references to the more recent French literature on electrocardiography.

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Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

SMALLPOX VACCINATION

To the Editor:—Kindly give me the following information concerning smallpox vaccination in an adult: 1. Indications or contraindications in a woman who is within (*a*) the first four weeks of pregnancy, (*b*) first three months of pregnancy, (*c*) last month of pregnancy and (*d*) the puerperal stage. 2. Should a husband who is being revaccinated consider impregnating his wife at this time? If contraindicated, how long should he wait?

M.D., New York.

ANSWER.—1. If there is a history of exposure to smallpox there is no contraindication to vaccination. (*a*, *b*, *c* and *d*) The present consensus is that vaccination of a mother exposed to smallpox at any stage of pregnancy is not contraindicated.

2. There is no objection to a husband being vaccinated at any time.

In at least one large contagious disease hospital it has been customary for a period of thirty years to vaccinate all patients admitted who show no evidence of a successful vaccination against smallpox. There has never been any serious complication from such a procedure, regardless of the age of the patient or the disease from which the patient suffered at the time of vaccination. However, if vaccination is not imperative because of exposure to smallpox, it is ill advised to perform this operation on individuals suffering from either acute or chronic eczema or various forms of dermatitis, on account of the danger of multiple accidental vaccinations occurring.

DIAGNOSIS OF POLYCYTHEMIA

To the Editor:—A man aged 35 has had chronic throbbing headaches for ten to twelve months. Six years ago, while working as a tire reconper, he had similar headaches. Four years ago while working in the galvanizing plant of a shipyard he was treated for acute zinc poisoning and was forced to give up such work. He is now back at his trade of tire reconper. In the course of his work he is exposed to both rubber dust and fumes of rubber solvent (supposedly petroleum benzin). Examination is negative except for a manifest midsystolic cardiac murmur over the pulmonic area. The lungs are normal on physical examination. Erythrocyte number 8,340,000. Hemoglobin is 14.3 Gm. per hundred cubic centimeters. There is a moderate but decided shift of the granulocytes to the left. The sedimentation rate is slightly increased in the final phase. The definite but moderate degree of polycythemia is not accompanied by the ruddy redness seen in the primary type of the disease. Differential diagnosis involves the problem of secondary stimulation of the blood forming organs by anoxemia due to occupational hazards, congenital heart disease and primary polycythemia vera. What is rubber solvent and will it act as a poison to the bone marrow? Will rubber dust produce a pneumoconiosis or otherwise interfere sufficiently with the pulmonary circulation to effect a relative anoxemia? Please discuss the differential diagnosis of this case, with particular reference to the etiologic factors involved.

Zeven M. Soren, M.D., Sebring, Fla.

ANSWER.—The headache and polycythemia strongly suggest repeated low grade exposure to carbon monoxide. There may not be chronic carbon monoxide poisoning, but there may be chronic exposure to that gas. Leaky gas appliances at home or at work may account for the two manifestations mentioned but not for certain others coexisting. The earlier zinc poisoning is probably without consequence at the present time. Acute zinc poisoning (there is no chronic form) is due to the inhalation of freshly flocculated zinc oxide fume and in galvanizing commonly arises only when the metal is overheated. This condition is one of the "metal fume fevers." It is characterized by severe chilling, usually at night after exposure during the previous work period, by great thirst and by malaise. There is a twelve to twenty-four hour course, with full recovery. Tolerance is readily developed and readily lost. Rubber dust will not produce a demonstrable pneumonoconiosis, but possibly rubber or some of its adjuvants may be allergenic. The features described scarcely suggest sensitivity. At this time some solvents are mislabeled or at least do not represent full content of the label designation. Petroleum benzin is naphtha but might possess a certain content of benzene. If this is present it is unlikely to produce a polycythemia. The percentage of carbon monoxide hemoglobin in the patient's blood should be determined. If significant the exposure should be located. Otherwise the condition probably is not related to work.

PROPHYLAXIS OF SUBACUTE BACTERIAL ENDOCARDITIS

To the Editor:—What is the best procedure for the prevention of subacute bacterial endocarditis following dental extractions or similar possible precipitating factors in cases of rheumatic valvular heart disease? What is the dosage of penicillin and/or sulfonamides and the duration of treatment in such cases?

M.D., Connecticut.

ANSWER.—Opinion is not unanimous concerning the drugs or doses to be used as prophylactic procedures in patients with acquired or congenital cardiac lesions who have teeth extracted. Since penicillin does not provoke serious toxic manifestations, this antibiotic probably has first choice. Two to three hours before extraction one could give intramuscularly 300,000 units of penicillin suspended in peanut oil and beeswax. This dose could be repeated daily for two to three days following the extraction. Another method would be to administer tablets of penicillin orally. An hour or two before the extraction 50,000 units may be ingested, preferably with the stomach empty of food. Then for two to three days, 50,000 units may be taken four times a day. One dose could be given before each of three meals and one in the evening. If a sulfonamide is to be used, one must ascertain whether or not the patient is sensitive to the drug. Either sulfadiazine or sulfamerazine may be employed. To determine whether the person is sensitive to the selected drug, one could give 0.5 Gm. orally and then wait a period of six hours before administering any further drug. Then about two hours before the contemplated extraction 2 Gm. of either sulfonamide may be given orally. For the following two to three days 1 Gm. should be administered every six hours. The patient should be instructed to drink adequate amounts of fluid.

TREATMENT OF PREMENSTRUAL TENSION

To the Editor:—What is the present status of the use of anhydro-oxyprogesterone in the treatment of premenstrual tension?

Glenn W. Canby, M.D., Miami, Okla.

ANSWER.—Premenstrual tension is probably due to the sudden rise of blood estrogens several days before the onset of menses (Freed, S. C.: The Treatment of Premenstrual Distress, THE JOURNAL, Feb. 17, 1945, p. 377). This rise in estrogens produces the various symptoms of premenstrual tension by causing an increase in the tissue fluid of the various organs; for example, swelling of the brain producing migraine, of the gastrointestinal tract, nausea, of the bladder, frequency of urination, or of the skin, nervousness and pruritus. Gilman, however, differs with these opinions and has claimed that progesterone is the inciting agent in the production of premenstrual tension (Gilman, Joseph: *J. Clin. Endocrinol.* **2**:157 [March] 1942). Nevertheless, these symptoms may be duplicated by administering rapidly absorbed estrogens to a patient in the menopause. The treatment of premenstrual tension is aimed at either neutralizing the action of estrogens by administering certain steroid hormones or relieving the water retention through the use of diuretics such as ammonium chloride. In some cases vitamin B complex may curb the increase in estrogens and thereby relieve the symptoms. Either progesterone or the androgens are effective in antagonizing the endogenous estrogens and thereby eliminating the symptoms, the androgens being more effective in this regard than progesterone. Anhydro-oxyprogesterone should theoretically produce a similar effect, since on an experimental basis it has an estrogen suppressing effect. However, clinically there is little evidence of this action, and in the experience of one investigator this treatment has been unsatisfactory.

POSTCOITAL HEADACHE AND LOSS OF MEMORY

To the Editor:—A man aged 30 complains that following coitus he experiences suboccipital headache and has difficulty in clear rationalization and memory for a period of twenty-four hours. He finds it difficult to remember and think clearly and becomes befuddled and uncertain of his ability to recall events or things. Can this be due to cerebral ischemia or cerebral congestion with straining on intercourse? This patient is not neurotic and I believe his story.

M.D., Texas.

ANSWER.—It is presumed that similar happenings have not been experienced by this man in any other stressful situation in which he might exert himself and overbreathe, or it would have been mentioned. It is also presumed that the recumbent posture was assumed in coitus and that the phenomena described followed each experience. It would be of interest to know the duration of coitus, the time elapsed between orgasm and onset of the first symptom, and whether the partner is usually the same person.

Syncope (fainting) and the syncope associated with hyperventilation may be dismissed from consideration, since symptoms lasting for twenty-four hours would not be apt to occur in these conditions.

Is it possible that the patient is suffering from disturbances of consciousness because of epilepsy? If so, the condition would most likely be psychomotor epilepsy, though it would be most unusual for this type of attack to follow sexual intercourse only. It is probably true that it is impossible to define the limits of psychomotor epilepsy, so that it may not be ruled out in this patient without more evidence.

The last sentence in the query probably contains the key to the solution of the patient's problem. "This patient is not neurotic and I believe his story." If there is anything to the association of ideas, and many studies have tested its validity, it may be inferred that the questioner seems to believe that neurosis and veracity are not likely associated; in other words, the person with a neurosis cannot be believed. If this is so, it must certainly disqualify him from deciding whether or not a group of symptoms are psychogenic.

Whether or not the symptoms described are on a psychogenic basis cannot be determined from the meager data supplied. However, the chances of this being the case are relatively good.

In an attempt to elucidate the cause of these symptoms the aid of a psychiatrist should be sought. Blood pressure readings in the recumbent, sitting and erect positions will probably be normal, as most likely will serial electroencephalograms done on several days during a week in which the patient notes these symptoms.

URTICARIA FOLLOWING PENICILLIN IN OIL AND WAX

To the Editor:—Several patients have developed severe generalized urticaria and pruritus following the administration of penicillin in oil and wax (Romansky formula). As penicillin itself is reported to be a remote cause of reaction, the question arises as to the allergenic properties of the vehicle in which it is administered. Has any method been developed to skin test or otherwise determine the sensitivity of a patient prior to the use of this formula?

Willis P. Baker, M.D., Santa Ana, Calif.

ANSWER.—Evidence that the generalized urticarial eruption that follows the administration of penicillin in oil and wax (Romansky formula) is any more likely to occur with this preparation than with the use of penicillin in aqueous solution or in salt solution is not available. The evidence is good that the sensitization is due to the penicillin itself and not to the oil or wax, since patients who receive penicillin in aqueous solution after having been sensitized following the use of penicillin in oil and wax will react with an urticarial eruption. Extensive studies have been carried out to determine whether or not any pollen extracts are carried over in the beeswax, and all these studies have been negative.

HEMOGLOBIN

To the Editor:—1. In calculating hemoglobin values by the Sahli method, what effect does a wait of thirty minutes, one hour, two hours or a day have on the final reading after the blood and hydrochloric acid have been mixed? 2. What percentage of the hemoglobin molecule is protein?

Leon Perle, M.D., New York.

ANSWER.—The color of an acid hematin solution increases in intensity on standing. The formation of color is said to follow a rectangular, hyperbolic curve ending at infinity. Actual readings made at various time intervals on the same blood sample are as follows: 5 minutes, 12.7 Gm.; 30 minutes, 13.7 Gm.; one hour, 14.2 Gm.; two hours, 14.7 Gm.; twenty-four hours, 14.7 Gm. The importance of calibrating and reading the Sahli instrument after the acid hematin has stood for a fixed period is obvious. To save time, it is best to make the final reading at five or ten minutes.

Hemoglobin is a conjugated protein made up of heme (an iron-porphyrin complex) and globin (a water soluble basic protein) in the proportion of 1 part of heme to 26 parts of globin, and hence contains about 96.3 per cent of globin.

SILICONES AS SYRINGE LUBRICANT

To the Editor:—I have been using a small amount of "Dow-Corning Stopcock Grease" as a lubricant for my syringes used for giving parenteral medicaments. This is described commercially only as a "Silicone Lubricant." It functions well in giving a smooth action to the syringe. Are there any possible remote ill effects that might result, should some of this material find its way into the tissue?

Lyman C. Blair, M.D., Houston, Texas.

ANSWER.—The silicones represent such a new development in organic chemicals and are so highly numerous, at least potentially, that as yet real appraisal of toxicity is not available. Some may prove to be highly toxic and others wholly inert. Methyl silicate, an organic silicon compound, is extremely toxic, as determined under experimental conditions. "Silicone Lubricant," on the other hand, appears to be wholly inert. The only conceivable possibility of danger for use in syringes is related to the unlikely mishap from emboli.

TUMOR OF BREAST AND ESTROGEN THERAPY

To the Editor:—A woman aged 35 has noticed a slightly tender mass in her left breast for one week. Physical examination is normal except for a slightly tender, hard, easily movable mass about 1.5 cm. in diameter in the upper outer quadrant of her left breast about 4 cm. from the nipple. There is no retraction sign, dimpling or palpable axillary nodes. The remainder of the left breast and the right breast are normal. She is not pregnant, has never nursed, and there has not been any discharge from the nipple. Should this tumor be removed and sectioned? Could any benefit be expected from a course of estrogen therapy? Would estrogens be likely to cause malignant changes in a benign tumor or increase the malignancy of a carcinoma of the breast?

M.D., New Jersey.

ANSWER.—The tumor should be excised and a frozen section prepared in the operating room for microscopic study. There is no clear indication for estrogen therapy in this case. There is strong experimental evidence that under special conditions estrogens may stimulate and accelerate epithelial neoplasia in the breasts of animals. There have been some clinical observations supporting these findings, but they are not conclusive.

RADON OINTMENT FOR ARTHRITIS

To the Editor:—Please discuss the use of radon ointment for the treatment of arthritis.

M.D., Michigan.

ANSWER.—Radon ointment has been used for the treatment of arthritis both here and in Europe for several years. The published reports sound encouraging. However, there has not been sufficient corroboration to evaluate with scientific accuracy the therapeutic effectiveness of this form of radiation therapy for arthritis.

References:

Lustig, F.: Radon and Physical Therapy, *M. Rec.* 158:225 (April) 1943.

Kestler, O.: A New Method of Local Treatment of Rheumatoid and Traumatic Affections of the Joints, *Geriatrics* 1:139 (March-April) 1946.

Jordan, H. H.: Alphatron Radon Ointment, *Indust. Med.* 14:964 (Dec.) 1945.

METHOD OF HEMOGLOBIN DETERMINATION

To the Editor:—What method for hemoglobin estimation is recommended for a small hospital? Are grams per hundred cubic centimeters blood or per-centages recommended for reporting hemoglobin values?

Isabelle M. Edwards, Greenport, N. Y.

ANSWER.—A photoelectric colorimeter is recommended for routine hemoglobin determinations. The types of apparatus available may be obtained from a laboratory supply house. The various methods and relative advantages of calibrating the photoelectric colorimeter are discussed by Wintrobe (Clinical Hematology, ed. 2, Philadelphia, Lea & Febiger 1946, p. 259).

Because of the variation in the hemoglobin value in normal persons and because of the variation with age and sex, the expression of hemoglobin in grams per hundred cubic centimeters of blood is preferred.

COMBINED USE OF PENICILLIN AND SULFONAMIDES

To the Editor:—Is there any contraindication to using penicillin along with any of the sulfonamides in the treatment of severe infections for which either would be indicated? Does one drug inhibit or nullify the action of the other?

R. A. Yorg, M.D., Reno, Nev.

ANSWER.—There is no contraindication to the use of penicillin and sulfonamide in combination. Neither drug inhibits or nullifies the action of the other. It is always better medical practice to use only one of the drugs for the treatment of infections. Exceptions can be made in the treatment of mixed infections in which some organisms are sensitive to penicillin and others are sensitive to sulfonamides.

RECURRENT ERYSIPELAS OR FUNGOUS INFECTION

To the Editor:—In the April 5, 1947 issue of The Journal, page 1043, there is an answer to a question concerning recurrent erysipelas. It seems to me that this answer misses the two most likely possibilities, namely (1) that fissures between the toes caused by a fungous infection are serving as ports of entry for the streptococcus or (2) that the recurrent attacks are really not erysipelas but an erysipelas-like dermatophytid. In the July 10, 1943 issue of The Journal there was a similar question to which a detailed answer was given, which went into the possibilities mentioned and also gives the pertinent literature to date. Since then there has been a review of this subject by Weisman entitled "Recurrent Fixed Erysipelas-like Dermatophytids" (*Arch. Dermat. & Syph.* 55:10 [Jan.] 1946). I think these two possibilities should be considered, for if either plays a role, treatment which does not eradicate the epidermophytosis focus will be fruitless.

Adolph Rostenberg Jr., M.D., Chicago.